PHILIPS 30PF9946

MODEL

SERVICE MANUAL

Colour Television

Chassis

LC4.6E

AA

Service
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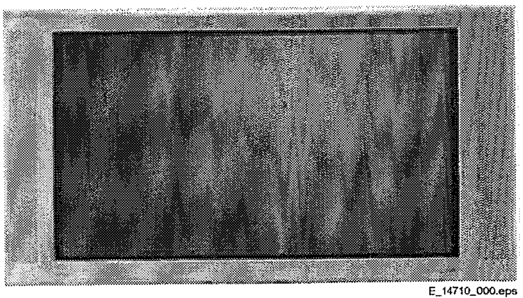

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Service Manual

Contents **Page**

1. Technical Specifications, Connections, and Chassis Overview 2
2. Safety Instructions, Warnings, and Notes 4
3. Directions for Use 5
4. Mechanical Instructions 6
5. Service Modes, Error Codes, and Fault Finding 9
6. *Block Diagrams, Testpoint Overviews, and Waveforms*
   - Wiring Diagram 15
   - Block Diagram Supply and Standby 16
   - Testpoint Overview Supply and Standby 17
   - Block Diagram Audio and Video 18
   - Block Diagram Audio and Video 19
   - Testpoint Overview SSB (Top Side) 20
   - I2C IC Overview 21
   - Supply Voltage Overview 22
7. *Circuit Diagrams and PWB Layouts* *Diagram* *PWB*
   - SSB: Tuner and VIF (A1) 23 40-49
   - SSB: Histogram and Hercules (A2) 24 40-49
   - SSB: Histogram and Hercules (A3) 25 40-49
   - SSB: Audio Delay line (Lip sync) (A4) 26 40-49
   - SSB: Audio Amplifier (A5) 27 40-49
   - SSB: TV Supply (A6) 28 40-49
   - SSB: Scaler (A7) 29 40-49
   - SSB: Scaler Supply (A8) 30 40-49
   - SSB: Scaler Interface (A9) 31 40-49
   - SSB: SDRAM (A10) 32 40-49
   - SSB: Flash / Control (A11) 33 40-49
   - SSB: HDMI (A12) 34 40-49
   - SSB: PCHD MUX (A13) 35 40-49
   - SSB: Supply (A14) 36 40-49
   - SSB: DC-DC Converter (A15) 37 40-49
   - SSB: PCHD IO (A16) 38 40-49
   - SSB: Rear IO Scart (A17) 39 40-49

Contents **Page**

   - PSU (30-32"): Mains Filter and Standby (AS1) 50 52-55
   - PSU (30-32"): Supply (AS2) 51 52-55
   - Side I/O Panel (D) 56 57
   - Top Control Panel (E) 58 59
   - LED and Switch Panel (J) 60 61
   - LCD Standby Audio Panel: Connections (SA1) 62 65-67
   - LCD Standby Audio Panel: Standby (SA2) 63 65-67
   - LCD Standby Audio Panel: Audio (SA3) 64 65-67
8. Alignments 69
9. Circuit Descriptions, Abbreviation List, and IC Data Sheets 73
   - Abbreviation list 80
   - IC Data Sheets 83
10. Spare Parts List 86
11. Revision List 93

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PHILIPS

1. Technical Specifications, Connections, and Chassis Overview

Index of this chapter:
1.1 Technical Specifications
1.2 Connection Overview
1.3 Chassis Overview

Note: Figures below can deviate slightly from the actual situation, due to the different set executions.

1.1 Technical Specifications

1.1.1 Vision

Display type	: DV-LCD-IPS
	: 15:9
Screen size	: 30" (76 cm)
Resolution (HxV pixels)	: 1280x768 (WXGA)
Contrast ratio	: 350:1
Light output (cd/m^2)	: 450
Viewing angle (HxV deg.)	: 176x176
Tuning system	: PLL
Colour systems	: PAL B/G, D/K, I
	: SECAM B/G, D/K, L/L'
Video playback	: NTSC 4.43/3.58,
	: NTSC Play Back,
	: PAL 60,
	: PAL B/G Play Back,
	: SECAM Play Back
Channel selections	: 100 presets
	: UVSH
Supported formats	: VGA (640x480)
	: VGA (720x400)
	: VGA (640x350)
	: MAC (640x480)
	: MAC (832x624)
	: SVGA (800x600)
	: XVGA (1024x768)
	: WXGA (1280x768)

1.1.2 Sound

Sound systems	: BI NICAM B/G
	: 2CS B/G
	: NICAM B/G (5.5-5.85)
	: NICAM D/K (6.5-5.85)
	: NICAM I (6.0-6.52)
	: NICAM L (6.5-5.85)
	: FM/FM (5.5-5.74 B/G)
Maximum power (W_{RMS})	: 2 x 10

1.1.3 Miscellaneous

Power supply:	
- Mains voltage (V_{AC})	: 220 - 240
- Mains frequency (Hz)	: 50 / 60
Ambient conditions:	
- Ambient temperature (°C)	: +5 to +40
- Maximum humidity	: 90% R.H.
Power consumption	
- Normal operation (W)	: 185
- Stand-by (W)	: < 2

1.2 Connection Overview

Note: The following connector colour abbreviations are used (acc. to DIN/IEC 757): Bk= Black, Bu= Blue, Gn= Green, Gy= Grey, Rd= Red, Wh= White, and Ye= Yellow.

1.2.1 Rear Connections

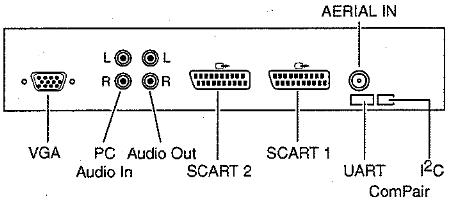

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Figure 1-1 Rear connections

VGA: Video RGB - In

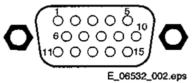

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Figure 1-2 VGA Connector

1	- Video Red	0.7 V_{PP} / 75 ohm	→○
2	- Video Green	0.7 V_{PP} / 75 ohm	→○
3	- Video Blue	0.7 V_{PP} / 75 ohm	→○
4	- n.c.		
5	- Ground	Gnd	⏚
6	- Ground Red	Gnd	⏚
7	- Ground Green	Gnd	⏚
8	- Ground Blue	Gnd	⏚
9	- +5V_DC	+5 V_{DC}	→○
10	- Ground Sync	Gnd	⏚
11	- n.c.		
12	- DDC_SDA	DDC data	→○
13	- H-sync	0 - 5 V	→○
14	- V-sync	0 - 5 V	→○
15	- DDC_SCL	DDC clock	→○

Cinch: PC Audio - In

Rd - Audio - R	0.5 V_{RMS} / 10 kohm	→○◎
Wh - Audio - L	0.5 V_{RMS} / 10 kohm	→○◎

Cinch: Audio - Out

Rd - Audio - R	0.5 V_{RMS} / 10 kohm	○→◎
Wh - Audio - L	0.5 V_{RMS} / 10 kohm	○→◎

SCART 1: Video RGB/YUV-In, CVBS-In/Out, Audio-In/Out

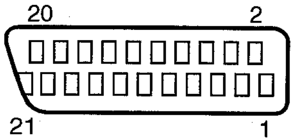

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Figure 1-3 SCART connector

1	- Audio R	0.5 V_{RMS} / 1 kohm	○→
2	- Audio R	0.5 V_{RMS} / 10 kohm	→○
3	- Audio L	0.5 V_{RMS} / 1 kohm	○→
4	- Ground Audio	Gnd	⏚
5	- Ground Blue	Gnd	⏚
6	- Audio L	0.5V_{RMS} / 10 kohm	→○
7	- Video Blue/U	0.7 V_{PP} / 75 ohm	→○
8	- Function Select	0 - 2 V: INT 4.5 - 7 V: EXT 16:9 9.5 - 12 V: EXT 4:3	→○
9	- Ground Green	Gnd	⏚
10	- n.c.		
11	- Video Green/Y	0.7 or 1 V_{PP} / 75 ohm	→○
12	- n.c.		
13	- Ground Red	Gnd	⏚
14	- n.c.		⏚
15	- Video Red/V	0.7 V_{PP} / 75 ohm	→○
16	- FBL	0 - 0.4 V: INT 1 - 3 V: EXT / 75 ohm	→○
17	- Ground Video	Gnd	⏚
18	- Ground FBL	Gnd	⏚
19	- Video CVBS	1 V_{PP} / 75 ohm	○→
20	- Video CVBS	1 V_{PP} / 75 ohm	→○
21	- Shield	Gnd	⏚

SCART 2: Video CVBS/YC - In/Out, Audio - In/Out

1	- Audio R	0.5 V_{RMS} / 1 kohm	○→
2	- Audio R	0.5 V_{RMS} / 10 kohm	→○
3	- Audio L	0.5 V_{RMS} / 1 kohm	○→
4	- Ground Audio	Gnd	⏚
5	- Ground Blue	Gnd	⏚
6	- Audio L	0.5 V_{RMS} / 10 kohm	→○
7	- Video C	0.7 V_{PP} / 75 ohm	○→
8	- Function Select	0 - 2 V: INT 4.5 - 7 V: EXT 16:9 9.5 - 12 V: EXT 4:3	→○
9	- Ground Green	Gnd	⏚
10	- Easylink P50	0 - 5 V / 4.7 kohm	→○○→
11	- n.c.		
12	- n.c.		
13	- Ground Red	Gnd	⏚
14	- Ground P50	Gnd	⏚
15	- Video C	0.7 V_{PP} / 75 ohm	→○
16	- n.c.		
17	- Ground Video	Gnd	⏚
18	- n.c.		
19	- Video CVBS	1 V_{PP} / 75 ohm	○→
20	- Video Y/CVBS	1 V_{PP} / 75 ohm	→○
21	- Shield	Gnd	⏚

Aerial - In

- IEC-type	Coax, 75 ohm	┐┌

1.2.2 Side I/O connections

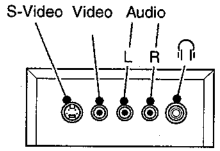
S-Video
Video
Audio
L
R

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Figure 1-4 Side I/O connections

SVHS (Hosiden): Video Y/C - In

1	- Ground Y	Gnd	⏚
2	- Ground C	Gnd	⏚
3	- Video Y	1 V_{PP} / 75 ohm	→○
4	- Video C	0.3 V_{PP} / 75 ohm	→○

Cinch: Video CVBS - In, Audio - In

Ye	- Video CVBS	1 V_{PP} / 75 ohm	→○◎
Wh	- Audio L	0.5 V_{RMS} / 10 kohm	→○◎
Rd	- Audio R	0.5 V_{RMS} / 10 kohm	→○◎

Mini Jack: Audio Head phone - Out

Bk	- Head phone	32 - 600 ohm / 10 mW	◎/🎧

1.3 Chassis Overview

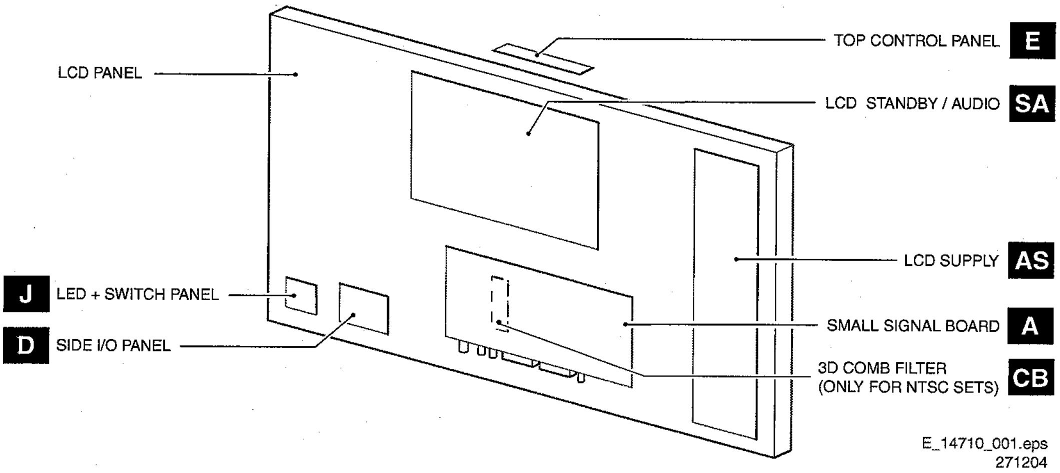
LCD PANEL
TOP CONTROL PANEL E
LCD STANDBY / AUDIO SA
LCD SUPPLY AS
J LED + SWITCH PANEL
D SIDE I/O PANEL
SMALL SIGNAL BOARD A
3D COMB FILTER (ONLY FOR NTSC SETS) CB

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Figure 1-5 Chassis Overview

2. Safety Instructions, Warnings, and Notes

Index of this chapter:

2.1 Safety Instructions
2.2 Warnings
2.3 Notes

2.1 Safety Instructions

Safety regulations require that **during** a repair:

- Connect the set to the mains via an isolation transformer (> 800 VA).
- Replace safety components, indicated by the symbol ⚠, only by components identical to the original ones. Any other component substitution (other than original type) may increase risk of fire or electrical shock hazard.

Safety regulations require that **after** a repair, the set must be returned in its original condition. Pay in particular attention to the following points:

- Route the wire trees correctly and fix them with the mounted cable clamps.
- Check the insulation of the mains lead for external damage.
- Check the strain relief of the mains cord for proper function.
- Check the electrical DC resistance between the mains plug and the secondary side (only for sets which have a mains isolated power supply):
  1. Unplug the mains cord and connect a wire between the two pins of the mains plug.
  2. Set the mains switch to the "on" position (keep the mains cord unplugged!).
  3. Measure the resistance value between the pins of the mains plug and the metal shielding of the tuner or the aerial connection on the set. The reading should be between 4.5 Mohm and 12 Mohm.
  4. Switch "off" the set, and remove the wire between the two pins of the mains plug.
- Check the cabinet for defects, to avoid touching of any inner parts by the customer.

2.2 Warnings

- All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD ⚠). Careless handling during repair can reduce life drastically. Make sure that, during repair, you are connected with the same potential as the mass of the set by a wristband with resistance. Keep components and tools also at this same potential. Available ESD protection equipment:
  - Complete kit ESD3 (small tablemat, wristband, connection box, extension cable and earth cable) 4822 310 10671.
  - Wristband tester 4822 344 13999.
- Be careful during measurements in the high voltage section.
- Never replace modules or other components while the unit is switched "on".
- When you align the set, use plastic rather than metal tools. This will prevent any short circuits and the danger of a circuit becoming unstable.

2.3 Notes

2.3.1 General

- Measure the voltages and waveforms with regard to the chassis (= tuner) ground (⏚), or hot ground (▽), depending on the tested area of circuitry. The voltages and waveforms shown in the diagrams are indicative. Measure them in the Service Default Mode (see chapter 5) with a colour bar signal and stereo sound (L: 3 kHz, R: 1 kHz unless stated otherwise) and picture carrier at 475.25 MHz for PAL, or 61.25 MHz for NTSC (channel 3).
- Where necessary, measure the waveforms and voltages with (⫪) and without (⊠) aerial signal. Measure the voltages in the power supply section both in normal operation (①) and in stand-by (⏻). These values are indicated by means of the appropriate symbols.
- The semiconductors indicated in the circuit diagram and in the parts lists, are interchangeable per position with the semiconductors in the unit, irrespective of the type indication on these semiconductors.
- Manufactured under license from Dolby Laboratories. "Dolby", "Pro Logic" and the "double-D symbol", are trademarks of Dolby Laboratories.

2.3.2 Schematic Notes

- All resistor values are in ohms and the value multiplier is often used to indicate the decimal point location (e.g. 2K2 indicates 2.2 kohm).
- Resistor values with no multiplier may be indicated with either an "E" or an "R" (e.g. 220E or 220R indicates 220 ohm).
- All capacitor values are given in micro-farads (μ= $x10^{-6}$), nano-farads (n= $x10^{-9}$), or pico-farads (p= $x10^{-12}$).
- Capacitor values may also use the value multiplier as the decimal point indication (e.g. 2p2 indicates 2.2 pF).
- An "asterisk" (*) indicates component usage varies. Refer to the diversity tables for the correct values.
- The correct component values are listed in the Electrical Replacement Parts List. Therefore, always check this list when there is any doubt.

2.3.3 Rework on BGA (Ball Grid Array) ICs

General
Although (LF)BGA assembly yields are very high, there may still be a requirement for component rework. By rework, we mean the process of removing the component from the PWB and replacing it with a new component. If an (LF)BGA is removed from a PWB, the solder balls of the component are deformed drastically so the removed (LF)BGA has to be discarded.

Device Removal
As is the case with any component that, it is essential when removing an (LF)BGA, the board, tracks, solder lands, or surrounding components are not damaged. To remove an (LF)BGA, the board must be uniformly heated to a temperature close to the reflow soldering temperature. A uniform temperature reduces the chance of warping the PWB.
To do this, we recommend that the board is heated until it is certain that all the joints are molten. Then carefully pull the component off the board with a vacuum nozzle. For the appropriate temperature profiles, see the IC data sheet.

Area Preparation
When the component has been removed, the vacant IC area must be cleaned before replacing the (LF)BGA.
Removing an IC often leaves varying amounts of solder on the mounting lands. This excessive solder can be removed with either a solder sucker or solder wick. The remaining flux can be removed with a brush and cleaning agent.
After the board is properly cleaned and inspected, apply flux on the solder lands and on the connection balls of the (LF)BGA.
Note: Do not apply solder paste, as this has shown to result in problems during re-soldering.

Device Replacement

The last step in the repair process is to solder the new component on the board. Ideally, the (LF)BGA should be aligned under a microscope or magnifying glass. If this is not possible, try to align the (LF)BGA with any board markers. So as not to damage neighbouring components, it may be necessary to reduce some temperatures and times.

More Information

For more information on how to handle BGA devices, visit this URL: *http://www.atyourservice.ce.philips.com* (needs subscription). After login, select "Magazine", then go to "Workshop Information". Here you will find Information on how to deal with BGA-ICs.

2.3.4 Lead Free Solder

Philips CE is going to produce lead-free sets (PBF) from 1.1.2005 onwards.

Figure 2-1 Lead-free logo

This sign normally has a diameter of 6 mm, but if there is less space on a board also 3 mm is possible.

Regardless of this logo (is not always present), one must treat all sets from this date onwards according to the following rules.

Due to lead-free technology some rules have to be respected by the workshop during a repair:
- Use only lead-free soldering tin Philips SAC305 with order code 0622 149 00106. If lead-free solder paste is required, please contact the manufacturer of your soldering equipment. In general, use of solder paste within workshops should be avoided because paste is not easy to store and to handle.
- Use only adequate solder tools applicable for lead-free soldering tin. The solder tool must be able
  - To reach at least a solder-tip temperature of 400°C.
  - To stabilise the adjusted temperature at the solder-tip.
  - To exchange solder-tips for different applications.
- Adjust your solder tool so that a temperature around 360°C - 380°C is reached and stabilised at the solder joint. Heating time of the solder-joint should not exceed ~ 4 sec. Avoid temperatures above 400°C, otherwise wear-out of tips will rise drastically and flux-fluid will be destroyed. To avoid wear-out of tips, switch "off" unused equipment or reduce heat.
- Mix of lead-free soldering tin/parts with leaded soldering tin/parts is possible but PHILIPS recommends strongly to avoid mixed regimes. If not to avoid, clean carefully the solder-joint from old tin and re-solder with new tin.
- Use only original spare-parts listed in the Service-Manuals. Not listed standard material (commodities) has to be purchased at external companies.
- Special information for lead-free BGA ICs: these ICs will be delivered in so-called "dry-packaging" to protect the IC against moisture. This packaging may only be opened short before it is used (soldered). Otherwise the body of the IC gets "wet" inside and during the heating time the structure of the IC will be destroyed due to high (steam-)pressure inside the body. If the packaging was opened before usage, the IC has to be heated up for some hours (around 90°C) for drying (think of ESD-protection!).
  Do not re-use BGAs at all!
- For sets produced before 1.1.2005, containing leaded soldering tin and components, all needed spare parts will be available till the end of the service period. For the repair of such sets nothing changes.

In case of doubt whether the board is lead-free or not (or with mixed technologies), you can use the following method:
- Always use the highest temperature to solder, when using SAC305 (see also instructions below).
- De-solder thoroughly (clean solder joints to avoid mix of two alloys).

Caution: For BGA-ICs, you **must** use the correct temperature-profile, which is coupled to the 12NC. For an overview of these profiles, visit the website *www.atyourservice.ce.philips.com* (needs subscription, but is not available for all regions)
You will find this and more technical information within the "Magazine", chapter "Workshop information".
For additional questions please contact your local repair help desk.

2.3.5 Practical Service Precautions

- **It makes sense to avoid exposure to electrical shock.** While some sources are expected to have a possible dangerous impact, others of quite high potential are of limited current and are sometimes held in less regard.
- **Always respect voltages.** While some may not be dangerous in themselves, they can cause unexpected reactions - reactions that are best avoided. Before reaching into a powered TV set, it is best to test the high voltage insulation. It is easy to do, and is a good service precaution.

3. Directions for Use

You can download this information from the following websites:
http://www.philips.com/support
http://www.p4c.philips.com

4. Mechanical Instructions

Index of this chapter:

4.1 Cable Dressing
4.2 Service Position
4.3 Assy/Panel Removal
4.4 Set Re-assembly

Notes:

- Figures below can deviate slightly from the actual situation, due to the different set executions.
- Follow the disassemble instructions in described order.

4.1 Cable Dressing

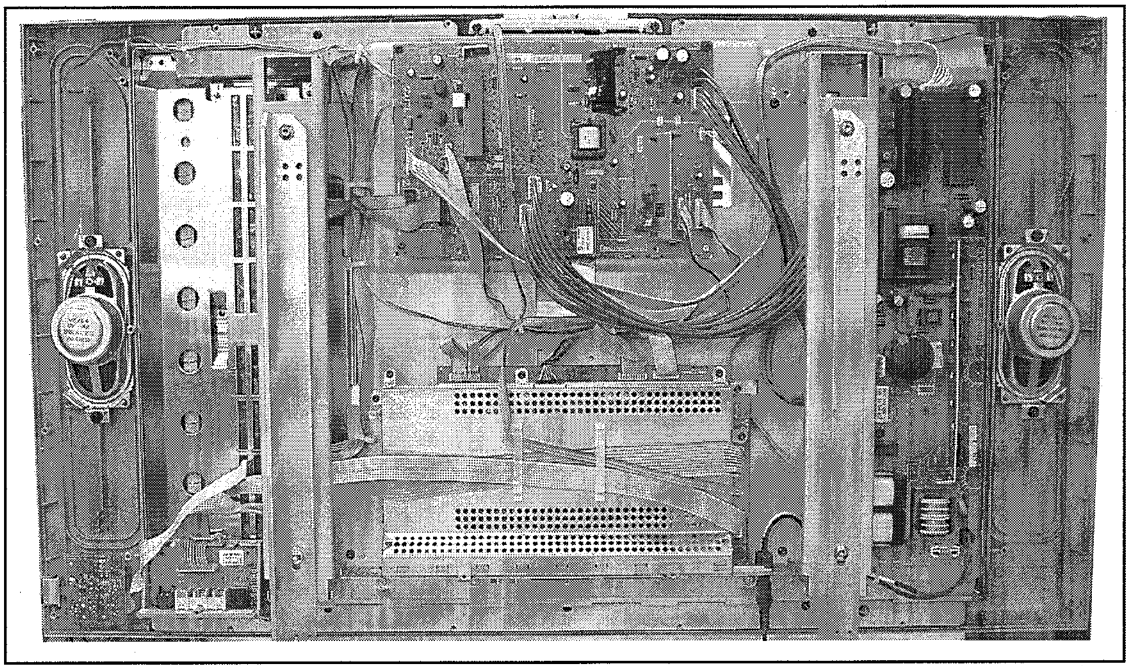

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Figure 4-1 Cable dressing

4.2 Service Position

First, put the TV set in its service position. Therefore, place it upside down on a table top (use a protection sheet or foam bars).

4.2.1 The Foam Bars

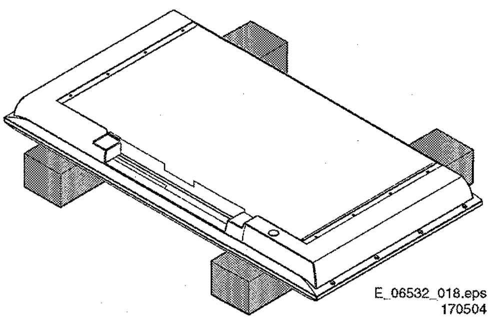

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Figure 4-2 Foam bars

The foam bars (order code 3122 785 90580) can be used for all types and sizes of Flat TVs. By laying the plasma or LCD TV flat on the (ESD protective) foam bars, a stable situation is created to perform measurements and alignments. By first placing a mirror flat on the table under the TV you can easily see if something is happening on the screen.

4.2.2 The Aluminium Stands

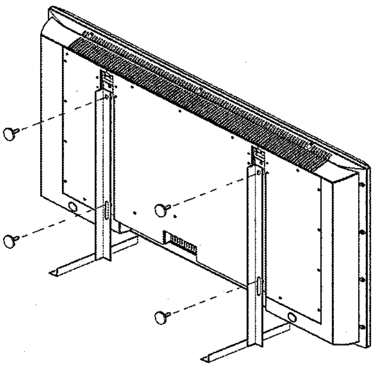

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Figure 4-3 Aluminium stands

The aluminium stands (order code 3122 785 90480) can also be used to do measurements and alignments. The stands are also very suitable to perform duration tests. With this stands the set does not take much space, has no risk of over heating, and/or falling. The stands can be mounted and removed quickly and easily with use of the provided screws, which can be tightened and loosened manually without the use of tools.
Caution: Only use the screws provided, otherwise it is possible to damage the monitor inside.

4.3 Assy/Panel Removal

4.3.1 Rear Cover

Warning: Disconnect the mains power cord before you remove the rear cover.

1. Remove the screws, which secure the rear cover. The screws are located at the top, bottom, left and right sides; next to the Side/IO connections and SCART connection. There are also three deeper located screws next to the stands.
2. Lift the rear cover from the cabinet. Make sure that wires and flat foils are not damaged during cover removal.

4.3.2 Side I/O Panel

1. Disconnect the cable from the panel.
2. To replace the complete bracket, remove the two fixation screws on either side of the panel.
3. Release the two fixation clamps and lift the panel out of the bracket.

4.3.3 LED + Switch Panel

1. Remove the two fixation screws.
2. Disconnect the cable from the rear of the panel.

4.3.4 Top Control Panel

1. Remove the two fixation screws.
2. Release the two fixation clamps and lift the panel out of the bracket.

4.3.5 Small Signal Board (SSB)

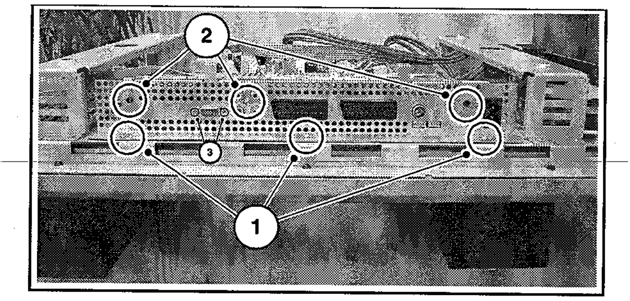

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Figure 4-4 SSB Connector plate

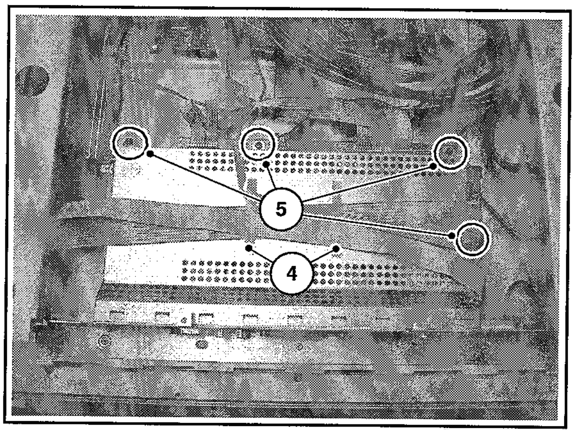

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Figure 4-5 Cover shield of the SSB

1. Remove the middle fixation screw (1) from the bottom side of the connector plate (as this holds the SSB bracket).
   Note: Sometimes it is easier to loosen the complete connector plate and remove it together with the SSB.
2. Remove all connector fixation screws (2) from the front side of the connector plate.
3. Remove the two female screw locks (3) of the VGA connector.
4. Release the plastic cable clips (4) on the shielding and disconnect all cables from the SSB.
   Note: Be careful with the fragile LVDS connector on the SSB.
5. Now, completely remove the SSB (together with all the shieldings) from the set.
6. Once the SSB is out, remove the fixation screws (5) from the shielding.
7. Remove the shielding, it hinges at the left side (acc. photo).
8. Remove the fixation screws that hold the panel, and take out the panel.

Notes:
- Pay special attention to the EMC foam on the SSB shielding. These must be replaced in their initial positions during set re-assembly.
- Insulate the tuner pins, so they cannot touch the shielding (see also figure "SDM Service jumper" in Chapter 5).

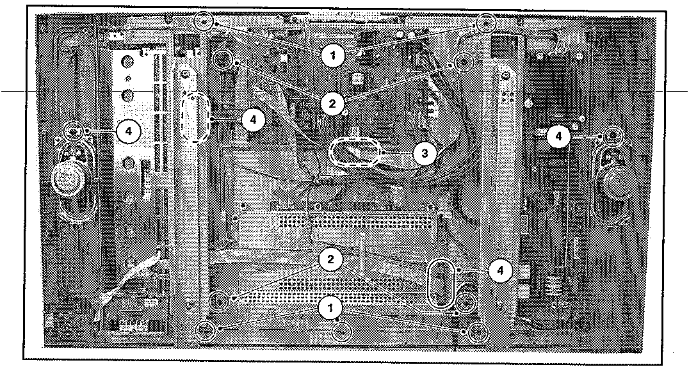
4.3.6 LCD Supply Panel

1. Disconnect all cables from the panel.
2. Remove the fixation screws from the panel.

4.3.7 LCD Stand-by/Audio Panel

1. Disconnect all cables from the panel.
2. Remove the fixation screws from the panel.

4.3.8 LCD Panel



E_14710_061.aps
030804

Figure 4-6 LCD panel disassembly

1. Remove the T10 screws (1) from the mounting frame.
2. Remove all mounting LCD panel T20 screws (2).
3. **Important:** Unplug the LVDS connector (3) at the LCD panel. **Be careful**, as this is a very fragile connector!
4. Unplug the following connectors (4).
   - LCD back light (disconnect at the LCD side)
   - Loudspeaker (easiest to disconnect at the speaker and to release the cable holders a little.
   - Top Control cable (disconnect at SSB side).
   - Cable between LED/Switch panel and SSB.
5. Lift the metal frame (together with all PWBs) from the LCD panel.
6. After removal of the frame, you can lift the LCD display from the set.

4.4 Set Re-assembly

To re-assemble the whole set, execute all processes in reverse order.

Notes:

- While re-assembling, make sure that all cables are placed and connected in their original position. See figure "Cable dressing".
- Pay special attention not to damage the EMC foams at the SSB shielding. Make sure that the EMC foams are put correctly in place.

5. Service Modes, Error Codes, and Fault Finding

Index of this chapter:

5.1 Test Points
5.2 Service Modes
5.3 Problems and Solving Tips Related to CSM
5.4 ComPair
5.5 Error Codes
5.6 The Blinking LED Procedure
5.7 Fault Finding and Repair Tips

5.1 Test Points

This chassis is equipped with test points in the service printing. In the schematics test points are identified with a rectangle box around Fxxx or Ixxx. These test points are specifically mentioned in the service manual as “half moons” with a dot in the centre.
Perform measurements under the following conditions:

- Television set in Service Default Alignment Mode.
- Video input: colour bar signal.
- Audio input: 3 kHz left channel, 1 kHz right channel.

5.2 Service Modes

Service Default mode (SDM) and Service Alignment Mode (SAM) offers several features for the service technician, while the Customer Service Mode (CSM) is used for communication between the call centre and the customer.

This chassis also offers the option of using ComPair, a hardware interface between a computer and the TV chassis. It offers the abilities of structured troubleshooting, error code reading, and software version read-out for all chassis. *Minimum requirements for ComPair:* a Pentium processor, a Windows OS, and a CD-ROM drive (see also paragraph "ComPair").

5.2.1 Service Default Mode (SDM)

Purpose

- To create a predefined setting for measurements.
- To override software protections.
- To start the blinking LED procedure.
- To inspect the error buffer.
- To check the life timer.

Specifications

Table 5-1 SDM default settings

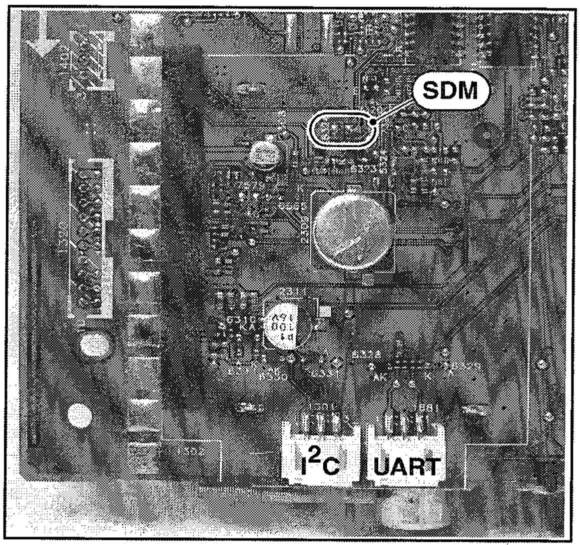
Region	Freq. (MHz)	Default system
Europe, AP-PAL/Multi	475.25	PAL B/G
NAFTA, AP-NTSC, LATAM	61.25 (ch. 3)	NTSC M

- All picture settings at 50% (brightness, colour contrast, hue).
- Bass, treble and balance at 50%; volume at 25%.
- All service-unfriendly modes (if present) are disabled. The service unfriendly modes are:
  - Timer / Sleep timer.
  - Child / parental lock.
  - Blue mute.
  - Hotel / hospital mode.
  - Auto shut off (when no “IDENT” video signal is received for 15 minutes).
  - Skipping of non-favourite presets / channels.
  - Auto-storage of personal presets.
  - Auto user menu time-out.
  - Auto Volume Levelling (AVL).

How to enter

To enter SDM, use one of the following methods:

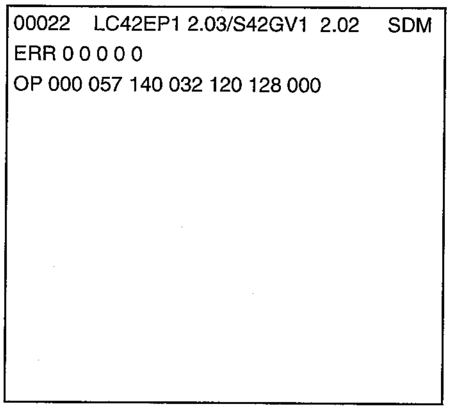
- Press the following key sequence on the remote control transmitter: **“062596”** directly followed by the MENU button (do not allow the OSD display to time out between entries while keying the sequence).
- Short SDM jumper (item 4022, see Figure "Service jumper") on the TV board and apply AC Power. Remove the short after start-up.
  Caution: Entering SDM by shorting "Service" jumpers will override the software protections. Do this only for a short period. **When doing this, the service-technician must know exactly what he is doing, as it could damage the television set.**



E_14710_062.eps
260804

Figure 5-1 SDM Service jumper

After entering SDM, the following screen is visible, with SDM in the upper right corner of the screen to indicate that the television is in Service Default Alignment Mode.



```
00022   LC42EP1 2.03/S42GV1  2.02    SDM
ERR 0 0 0 0 0
OP 000 057 140 032 120 128 000
```

E_14710_006.eps
240604

Figure 5-2 SDM menu (example from LC4.2E)

How to navigate

When you press the MENU button on the remote control, the set will switch on the normal user menu in the SDM mode.

How to exit

Switch the set to STANDBY by pressing the POWER button on the remote control transmitter.

If you turn the television set off by removing the mains (i.e., unplugging the television) or by using the POWER button on the TV set, the television set will remain in SDM when mains is re-applied, and the error buffer is not cleared.

5.2.2 Service Alignment Mode (SAM)

Purpose

- To change option settings.
- To display / clear the error code buffer.
- To perform alignments.

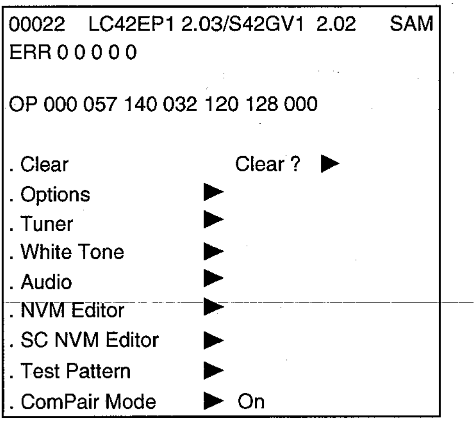
Specifications

- Operation hours counter (maximum five digits displayed).
- Software version, Error codes, and Option settings display.
- Error buffer clearing.
- Option settings.
- Software alignments (Tuner, White Tone, Geometry, and Audio).
- NVM Editor.
- ComPair Mode switching.

How to enter

Press the following key sequence on the remote control transmitter: **"062596"** directly followed by the OSD/STATUS/INFO button (do not allow the OSD display to time out between entries while keying the sequence).

After entering SAM, the following screen is visible, with SAM in the upper right corner of the screen to indicate that the television is in Service Alignment Mode.



```
00022   LC42EP1 2.03/S42GV1  2.02      SAM
ERR 0 0 0 0 0

OP 000 057 140 032 120 128 000

. Clear                   Clear ?  ▶
. Options              ▶
. Tuner                ▶
. White Tone           ▶
. Audio                ▶
. NVM Editor           ▶
. SC NVM Editor        ▶
. Test Pattern         ▶
. ComPair Mode         ▶  On
```

E_14710_007.eps
240604

Figure 5-3 SAM menu (example from LC4.2E)

Menu explanation

1. **LLLLL.** This represents the run timer. The run timer counts normal operation hours (including "on/off" switching), but does not count stand-by hours.
2. **AAAABCD-X.YY/EEEEEE_F.GG.** This is the software identification of the Main/Scaler microprocessor:
   - **A**= the chassis name.
   - **B**= the region: E= Europe, A= Asia Pacific, U= NAFTA, L= LATAM.
   - **C**= the software diversity:
     - **Europe:** T= 1 pg TXT, F= Full TXT, V= Voice ctrl.
     - **LATAM and NAFTA:** N= Stereo non-dBx, S= Stereo dBx.
     - **Asian Pacific:** T= TXT, N= non-TXT, C= NTSC.
     - **ALL regions:** M= mono, D= DVD, P= Pixel Plus, Q= Mk2.
   - **D**= the language cluster number.
   - **X**= the Main software version number (updated with a major change that is incompatible with previous versions).
   - **YY**= the sub software version number (updated with a minor change that is compatible with previous versions).
   - **EEEEEE**= the Scaler SW cluster
   - **F**= the Scaler SW version no.
   - **GG**= the sub-version no.
3. **SAM.** Indication of the Service Alignment Mode.
4. **Error Buffer (ERR).** Shows all errors detected since the last time the buffer was erased. Five errors possible.
5. **Option Bytes (OP).** Shows all option settings. See "Options" in the Alignments section for a detailed description. Seven codes are available.
6. **Clear.** Erases the contents of the error buffer. Select the CLEAR menu item and press the CURSOR RIGHT key. The content of the error buffer is cleared.
7. **Options.** Used to set the option bits. See "Options" in the Alignments section for a detailed description.
8. **Tuner.** Used to align the tuner. See "Tuner" in the Alignments section for a detailed description.
9. **White Tone.** Used to align the white tone. See "White Tone" in the Alignments section for a detailed description.
10. **Audio.** No audio alignment is necessary for this television set.
11. **NVM Editor.** Can be used to change the NVM data in the television set.
12. **SC NVM Editor. Can be used to edit Scaler NVM.**
13. **Test Pattern.** For future use.
14. **ComPair.** Can be used to switch the television to "In System Programming" (ISP) mode, for software uploading via ComPair.
    Caution: When this mode is selected without ComPair connected, the TV will be blocked. Remove the AC power to reset the TV.

How to navigate

- In SAM, select menu items with the CURSOR UP/DOWN keys on the remote control transmitter. The selected item will be highlighted. When not all menu items fit on the screen, use the CURSOR UP/DOWN keys to display the next / previous menu items.
- With the CURSOR LEFT/RIGHT keys, it is possible to:
  - Activate the selected menu item.
  - Change the value of the selected menu item.
  - Activate the selected submenu.
- In SAM, when you press the MENU button twice, the set will switch to the normal user menus (with the SAM mode still active in the background). To return to the SAM menu press the MENU button again.
- When you press the MENU key in while in a submenu, you will return to the previous menu.

How to store SAM settings

To store the settings changed in SAM mode, leave the top level SAM menu by using the POWER button on the remote control transmitter or the television set.

How to exit

Switch the set to STANDBY by pressing the POWER button on the remote control transmitter or on the television set.

5.2.3 Customer Service Mode (CSM)

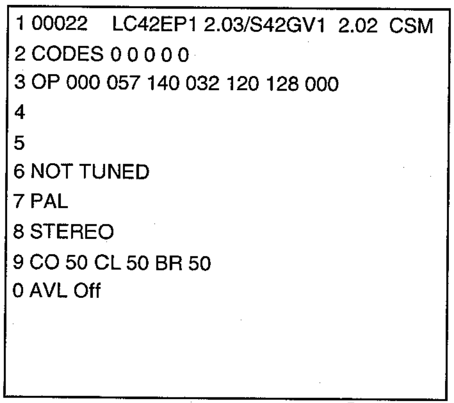
Purpose

The Customer Service Mode shows error codes and information on the TV's operation settings. The call centre can instruct the customer (by telephone) to enter CSM in order to identify the status of the set. This helps the call centre to diagnose problems and failures in the TV set before making a service call.
The CSM is a read-only mode; therefore, modifications are not possible in this mode.

How to enter

To enter CSM, press the following key sequence on the remote control transmitter: **"123654"** (do not allow the OSD display to time out between entries while keying the sequence).

Upon entering the Customer Service Mode, the following screen will appear:



```
1 00022   LC42EP1 2.03/S42GV1  2.02  CSM
2 CODES 0 0 0 0 0
3 OP 000 057 140 032 120 128 000
4
5
6 NOT TUNED
7 PAL
8 STEREO
9 CO 50 CL 50 BR 50
0 AVL Off
```

E_14710_008.eps
240604

Figure 5-4 CSM menu (example from LC4.2E)

Menu explanation

1. Indication of the decimal value of the operation hours counter, Main/Scaler software version (see "Service Alignment Mode" for an explanation), and service mode (CSM= Customer Service Mode).
2. Displays the last five errors detected in the error code buffer.
3. Displays the option bytes.
4. Displays the type number version of the set (option).
5. Reserved.
6. Indicates the television is receiving an "IDENT" signal on the selected source. If no "IDENT" signal is detected, the display will read "NOT TUNED"
7. Displays the detected Colour system (e.g. PAL/NTSC).
8. Displays the detected Audio (e.g. stereo/mono).
9. Displays the picture setting information.
10. Displays the sound setting information.

How to exit

To exit CSM, use one of the following methods:

- Press the MENU, STATUS (or EXIT/INFO/[i+]), or POWER button on the remote control transmitter.
- Press the POWER button on the television set.

5.3 Problems and Solving Tips Related to CSM

5.3.1 Picture Problems

Note: The problems described below are all related to the TV settings. The procedures used to change the value (or status) of the different settings are described.

Picture too dark or too bright

If:

- The picture improves when you press the AUTO PICTURE button on the remote control transmitter, or
- The picture improves when you enter the Customer Service Mode,

Then:

1. Press the AUTO PICTURE button on the remote control transmitter repeatedly (if necessary) to choose PERSONAL picture mode.
2. Press the MENU button on the remote control transmitter. This brings up the normal user menu.
3. In the normal user menu, use the CURSOR UP/DOWN keys to highlight the PICTURE sub menu.
4. Press the CURSOR LEFT/RIGHT keys to enter the PICTURE sub menu.
5. Use the CURSOR UP/DOWN keys (if necessary) to select BRIGHTNESS.
6. Press the CURSOR LEFT/RIGHT keys to increase or decrease the BRIGHTNESS value.
7. Use the CURSOR UP/DOWN keys to select PICTURE.
8. Press the CURSOR LEFT/RIGHT keys to increase or decrease the PICTURE value.
9. Press the MENU button on the remote control transmitter twice to exit the user menu.
10. The new PERSONAL preference values are automatically stored.

White line around picture elements and text

If:

The picture improves after you have pressed the AUTO PICTURE button on the remote control transmitter,

Then:

1. Press the AUTO PICTURE button on the remote control transmitter repeatedly (if necessary) to choose PERSONAL picture mode.
2. Press the MENU button on the remote control transmitter. This brings up the normal user menu.
3. In the normal user menu, use the CURSOR UP/DOWN keys to highlight the PICTURE sub menu.
4. Press the CURSOR LEFT/RIGHT keys to enter the PICTURE sub menu.
5. Use the CURSOR UP/DOWN keys to select SHARPNESS.
6. Press the CURSOR LEFT key to decrease the SHARPNESS value.
7. Press the MENU button on the remote control transmitter twice to exit the user menu.
8. The new PERSONAL preference value is automatically stored.

Snowy picture

Check CSM line 6. If this line reads "Not Tuned", check the following:

- Antenna not connected. Connect the antenna.
- No antenna signal or bad antenna signal. Connect a proper antenna signal.
- The tuner is faulty (in this case line 2, the Error Buffer line, will contain error number 10). Check the tuner and replace/ repair the tuner if necessary.

Black and white picture

If:

- The picture improves after you have pressed the AUTO PICTURE button on the remote control transmitter,

Then:

1. Press the AUTO PICTURE button on the remote control transmitter repeatedly (if necessary) to choose PERSONAL picture mode.
2. Press the MENU button on the remote control transmitter. This brings up the normal user menu.
3. In the normal user menu, use the CURSOR UP/DOWN keys to highlight the PICTURE sub menu.
4. Press the CURSOR LEFT/RIGHT keys to enter the PICTURE sub menu.
5. Use the CURSOR UP/DOWN keys to select COLOUR.
6. Press the CURSOR RIGHT key to increase the COLOUR value.

7. Press the MENU button on the remote control transmitter twice to exit the user menu.
8. The new PERSONAL preference value is automatically stored.

Menu text not sharp enough

If:
- The picture improves after you have pressed the AUTO PICTURE button on the remote control transmitter,

Then:
1. Press the AUTO PICTURE button on the remote control transmitter repeatedly (if necessary) to choose PERSONAL picture mode.
2. Press the MENU button on the remote control transmitter. This brings up the normal user menu.
3. In the normal user menu, use the CURSOR UP/DOWN keys to highlight the PICTURE sub menu.
4. Press the CURSOR LEFT/RIGHT keys to enter the PICTURE sub menu.
5. Use the CURSOR UP/DOWN keys to select PICTURE.
6. Press the CURSOR LEFT key to decrease the PICTURE value.
7. Press the MENU button on the remote control transmitter twice to exit the user menu.
8. The new PERSONAL preference value is automatically stored.

5.4 ComPair

5.4.1 Introduction

ComPair (Computer Aided Repair) is a service tool for Philips Consumer Electronics products. ComPair is a further development on the European DST (service remote control), which allows faster and more accurate diagnostics. ComPair has three big advantages:
- ComPair helps you to quickly get an understanding on how to repair the chassis in a short time by guiding you systematically through the repair procedures.
- ComPair allows very detailed diagnostics (on I^{2}C level) and is therefore capable of accurately indicating problem areas. You do not have to know anything about I^{2}C commands yourself because ComPair takes care of this.
- ComPair speeds up the repair time since it can automatically communicate with the chassis (when the microprocessor is working) and all repair information is directly available. When ComPair is installed together with the Force/SearchMan electronic manual of the defective chassis, schematics and PWBs are only a mouse click away.

5.4.2 Specifications

ComPair consists of a Windows based fault finding program and an interface box between PC and the (defective) product. The ComPair interface box is connected to the PC via a serial (or RS232) cable.
For this chassis, the ComPair interface box and the TV communicate via a bi-directional service cable via the service connector(s).

The ComPair fault finding program is able to determine the problem of the defective television. ComPair can gather diagnostic information in two ways:
- Automatic (by communication with the television): ComPair can automatically read out the contents of the entire error buffer. Diagnosis is done on I^{2}C/UART level. ComPair can access the I^{2}C/UART bus of the television. ComPair can send and receive I^{2}C/UART commands to the micro controller of the television. In this way, it is possible for ComPair to communicate (read and write) to devices on the I^{2}C/UART buses of the TV-set.
- Manually (by asking questions to you): Automatic diagnosis is only possible if the micro controller of the television is working correctly and only to a certain extend. When this is not the case, ComPair will guide you through the fault finding tree by asking you questions (e.g. *Does the screen give a picture? Click on the correct answer: YES / NO*) and showing you examples (e.g. *Measure test-point I7 and click on the correct oscillogram you see on the oscilloscope*). You can answer by clicking on a link (e.g. text or a waveform picture) that will bring you to the next step in the fault finding process.

By a combination of automatic diagnostics and an interactive question / answer procedure, ComPair will enable you to find most problems in a fast and effective way.

Beside fault finding, ComPair provides some **additional features** like:
- Up- or downloading of pre-sets.
- Managing of pre-set lists.
- Emulation of the (European) Dealer Service Tool (DST).
- If both ComPair and Force/SearchMan (Electronic Service Manual) are installed, all the schematics and the PWBs of the set are available by clicking on the appropriate hyperlink.
  Example: *Measure the DC-voltage on capacitor C2568 (Schematic/Panel) at the Mono-carrier.*
  - Click on the “Panel” hyperlink to automatically show the PWB with a highlighted capacitor C2568.
  - Click on the “Schematic” hyperlink to automatically show the position of the highlighted capacitor.

5.4.3 How To Connect

This is described in the chassis fault finding database in ComPair.

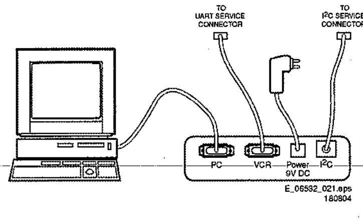


Figure 5-5 ComPair interface connection

5.4.4 How To Order

ComPair order codes (EU/AP/LATAM):
- Starter kit ComPair32/SearchMan32 software and ComPair interface (excl. transformer): 3122 785 90450.
- ComPair interface (excluding transformer): 4822 727 21631.
- Starter kit ComPair32 software (registration version): 3122 785 60040.
- Starter kit SearchMan32 software: 3122 785 60050.
- ComPair32 CD (update): 3122 785 60070 (year 2002), 3122 785 60110 (year 2003 onwards).
- SearchMan32 CD (update): 3122 785 60080 (year 2002), 3122 785 60120 (year 2003), 3122 785 60130 (year 2004).
- ComPair firmware upgrade IC: 3122 785 90510.
- Transformer (non-UK): 4822 727 21632.
- Transformer UK: 4822 727 21633.
- ComPair interface cable: 3122 785 90004.
- ComPair interface extension cable: 3139 131 03791.
- ComPair UART interface cable: 3122 785 90630

Note: If you encounter any problems, contact your local support desk.

5.5 Error Codes

The error code buffer contains all errors detected since the last time the buffer was erased. The buffer is written from left to right. When an error occurs that is not yet in the error code buffer, it is displayed at the left side and all other errors shift one position to the right.

5.5.1 How To Read The Error Buffer

You can read the error buffer in 3 ways:

- On screen via the SAM (if you have a picture). Examples:
  - ERROR: 0 0 0 0 0: No errors detected
  - ERROR: 6 0 0 0 0: Error code 6 is the last and only detected error
  - ERROR: 9 6 0 0 0: Error code 6 was detected first and error code 9 is the last detected (newest) error
- Via the blinking LED procedure (when you have no picture). See "The Blinking LED Procedure".
- Via ComPair.

5.5.2 How To Clear The Error Buffer

The error code buffer is cleared in the following cases:

- By using the CLEAR command in the SAM menu:
  - To enter SAM, press the following key sequence on the remote control transmitter: **"062596"** directly followed by the OSD/STATUS button (do not allow the OSD display to time out between entries while keying the sequence).
  - Make sure the menu item CLEAR is highlighted. Use the CURSOR UP/DOWN buttons, if necessary.
  - Press the CURSOR RIGHT button to clear the error buffer. The text on the right side of the "CLEAR" line will change from "CLEAR?" to "CLEARED"
- If an error does not re-occur within 50 hours it is deleted from the error buffer.

5.5.3 Error Codes

In case of non-intermittent faults, write down the errors present in the error buffer and clear the error buffer before you begin the repair. This ensures that old error codes are no longer present.
If possible, check the entire contents of the error buffer. In some situations, an error code is only the result of another error and not the actual cause of the problem (for example, a fault in the protection detection circuitry can also lead to a protection).

Table 5-2 Error code overview

Error	Device	Error description	Check item	Diagram
0	Not applicable	-	-	-
1	Not applicable	-	-	-
2	Not applicable	-	-	-
3	Not applicable	-	-	-
4	GM1501 Scaler Flash-ROM	I^2C error while communicating with the Genesis Scaler and/or Flash-ROM is faulty/empty	7401 7530	A7 A11
5	Not applicable	+5V protection	7930	A6
6	I^2C bus	General I^2C error	7011, 3088, 3096	A2
7	Not applicable	-	-	-
8	M24C32	I^2C error while communicating with the Scaler EEPROM	7531	A11
9	M24C16	I^2C error while communicating with the EEPROM	7099	A2
10	Tuner	I^2C error while communicating with the PLL tuner	1302, 3302, 3303, 3327	A1
11	Not applicable	-	-	-
12	Not applicable	-	-	-
13	Not applicable	-	-	-
14	K4D263238M	Read-write error with the Scaler SDRAM	7501	A10
15	TDA9178T/N1	I^2C error while communicating with Histogram	7560	A3

5.6 The Blinking LED Procedure

Using this procedure, you can make the contents of the error buffer visible via the front LED. This is especially useful when there is no picture.

When the SDM is entered, the front LED will blink the contents of the error-buffer:

- The LED blinks with as many pulses as the error code number, followed by a time period of 1.5 seconds, in which the LED is "off".
- Then this sequence starts is repeated.

Any RC5 command terminates this sequence.

Example of error buffer: **12 9 6 0 0**
After entering SDM, the following occurs:

- 1 long blink of 5 seconds to start the sequence,
- 12 short blinks followed by a pause of 1.5 seconds,
- 9 short blinks followed by a pause of 1.5 seconds,
- 6 short blinks followed by a pause of 1.5 seconds,
- 1 long blink of 1.5 seconds to finish the sequence,
- The sequence starts again at 12 short blinks.

5.7 Fault Finding and Repair Tips

Notes:

- It is assumed that the components are mounted correctly with correct values and no bad solder joints.
- Before any fault finding actions, check if the correct options are set.

5.7.1 NVM Editor

In some cases, it can be handy if one directly can change the NVM contents. This can be done with the "NVM Editor" in SAM mode. With this option, single bytes can be changed.

Table 5-3 NVM editor overview

	Hex	Dec	Description
.ADR	0x000A	10	Existing value
.VAL	0x0000	0	New value
.Store	Store?		

5.7.2 Load default NVM values

In case a blank NVM is placed or when the NVM content is corrupted, default values can be downloaded into the NVM. After the default values are downloaded it will be possible to start up and to start aligning the TV set. This is no longer initiated automatically; to initiate the download the following action has to be performed:

1. Switch "off" the TV set via the AC Power switch.
2. Short circuit the SDM jumpers (keep short-circuited).
3. Press P+ or Ch+ on the local keyboard (and keep it pressed).
4. Switch on the TV set via the AC Power switch.
5. When the set has started, the P+/Ch+ button can be released and the short circuit of the SDM jumpers can be removed.
6. The red LED will be on continuously to indicate that the download is initiated (normally when SDM is activated the red LED will start with the Blinking LED sequence).
7. Wait +/- 30 s (time needed to download default values to the NVM).

5.7.3 Tuner and IF

No Picture in RF mode

1. Check whether picture is present in AV. If not, go to Video processing troubleshooting section.
2. If present, check that the Option settings are correct.
3. Check that all supply voltages are present.
4. Check if I^2C lines are working correctly (3.3V).
5. Manually store a known channel and check if there is IF output at Tuner pin 11.
6. Feed in 105 dBuV at Tuner pin 11 and check whether there is RGB output from Video Processing IC. If yes, Tuner may be defect. Replace Tuner.

Required system is not selected correctly

1. Check whether a Service jumper (#4022, 0805 size) is present. If yes, remove it.

5.7.4 Video Processing

No power

1. Check +12 V and 3V3 at position 1910.
2. If no supply, check the connector 1910.
3. If it is correct, check the power supply board.

Power supply is correct but no green LED

1. Check if connectors 1005 and 1601 are properly inserted.
2. If yes, check if the 3V3 is present.

No picture display

1. Check the RGB signal.
2. If it is present, check 3-IC7016 (NE555).
3. If it has output, the problem is in SCALER part.
4. Otherwise, check H-out on pin 2 of NE555. If the input signal of pin 2 is present, but no output, the IC is defect.

Note:

- If the H-out (pin 67) doesn't have signal or the level is low, check the output of NE555 (pin 3) during start up.
- If the H-out (pin 67) has a signal (or has a signal for a very short time), change IC7016 (NE555).

No TV but PC is present

1. Check if HSYNC and VSYNC are present at pin 3 of 7017 and 7015.
2. If they are present, check RGB output.
3. If there is no RGB output, the IC TDA120xx can be defect.

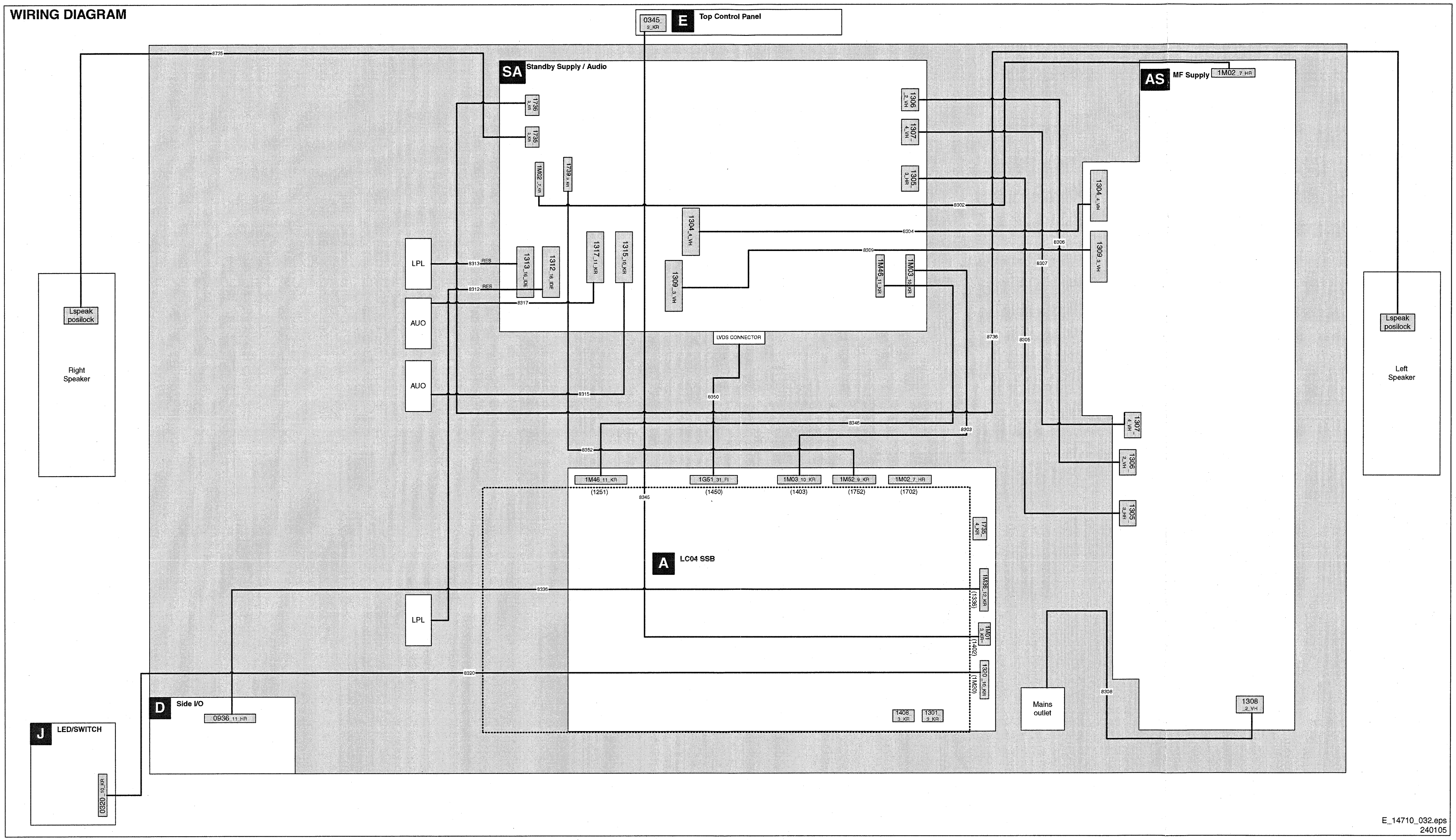
5.7.5 Power Supply

This power supply contains two fuses. One is near the AC Power (or mains) inlet connector 1308 and the other is near connector 1307.

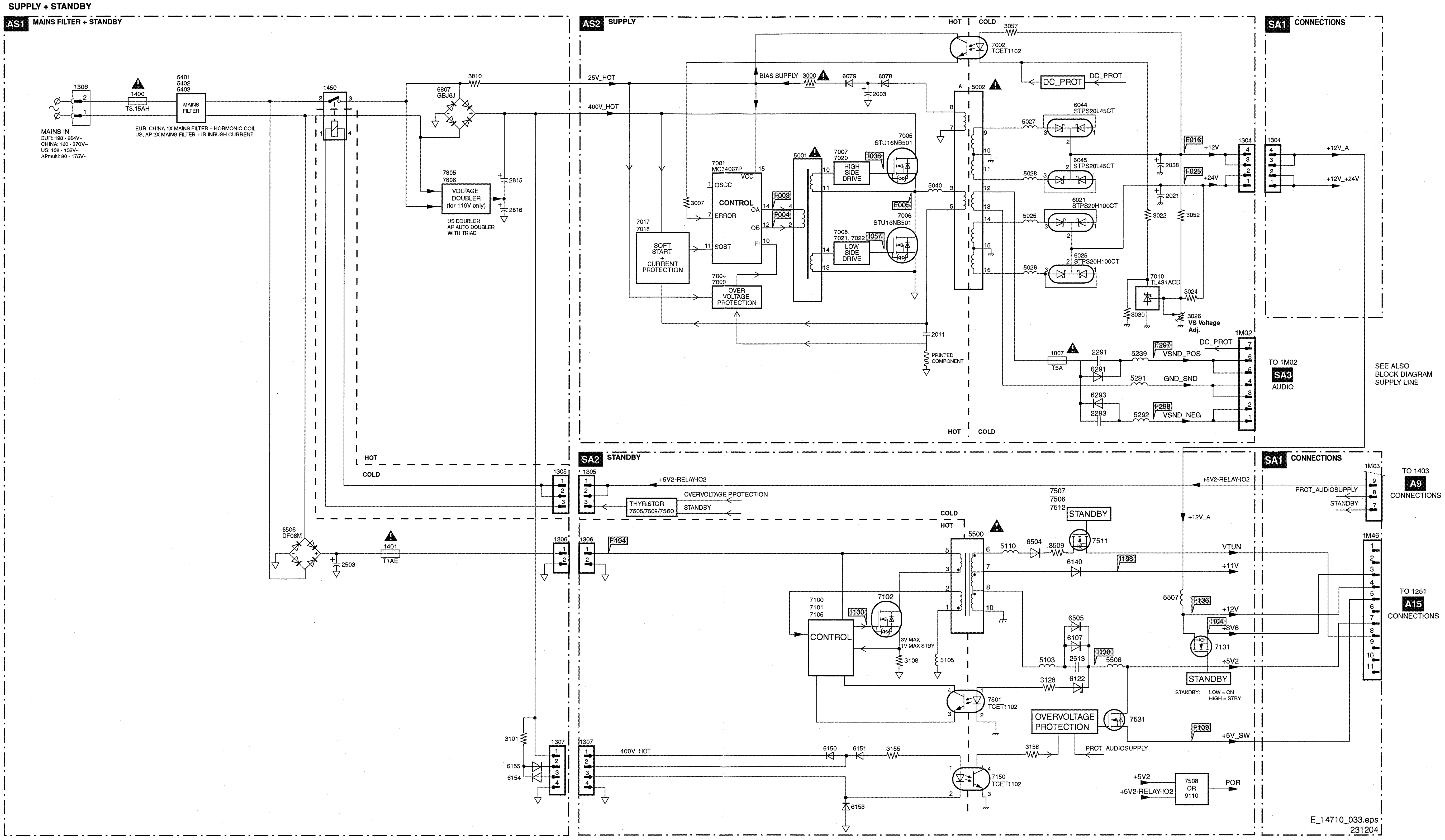
1. Check with power supply in "off" state by means of ohmic measurement.
2. Fuse 1400 may open in case of severe lightning strikes and/or failures in the power supply.
3. Fuses 1401 may open in case of a problem with the Stand-by Supply. Replacement of the fuse is needed, but not before the cause of the overload conditions is resolved.

6. Block Diagrams, Testpoint Overviews, and Waveforms

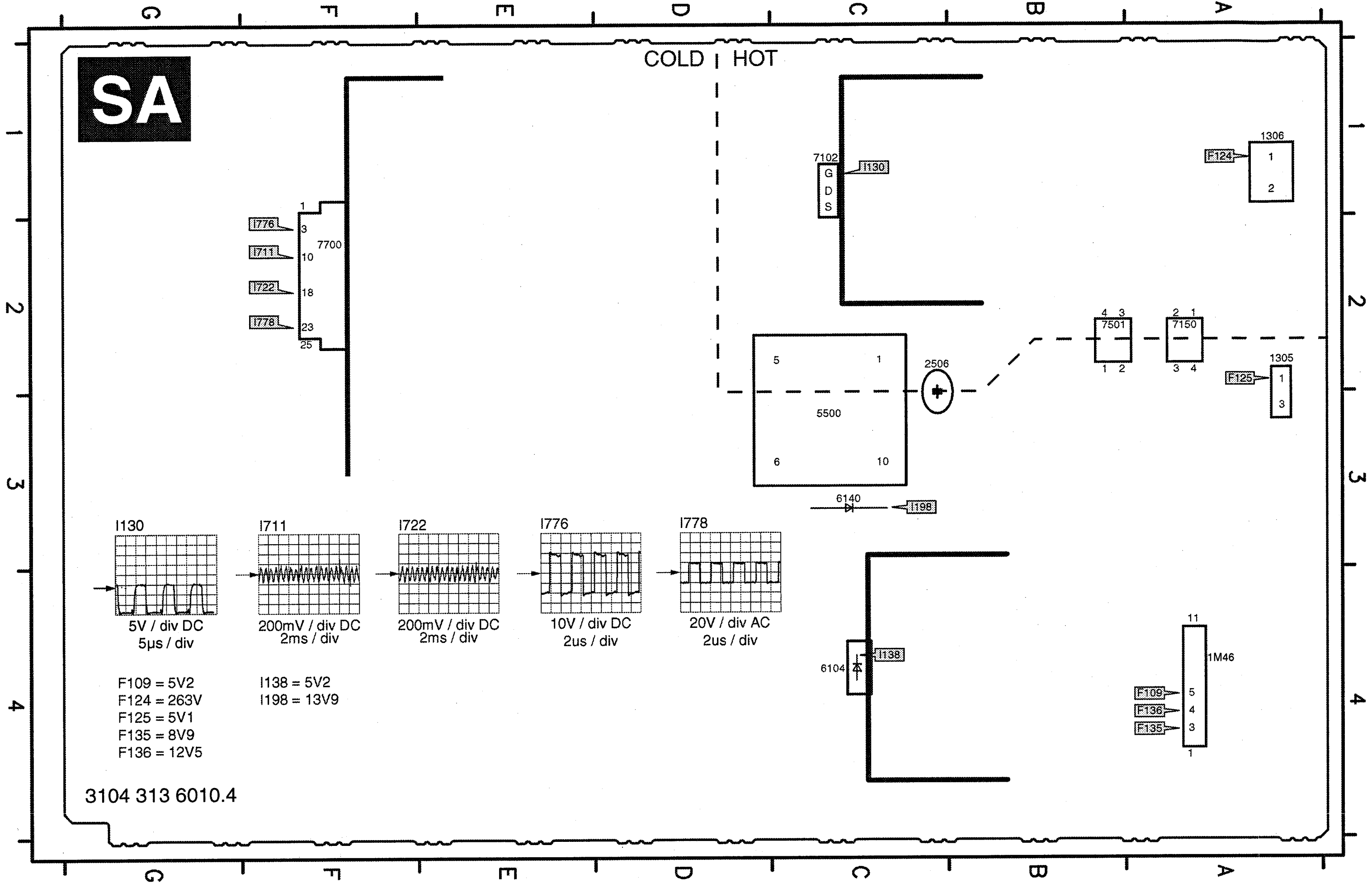
Wiring Diagram

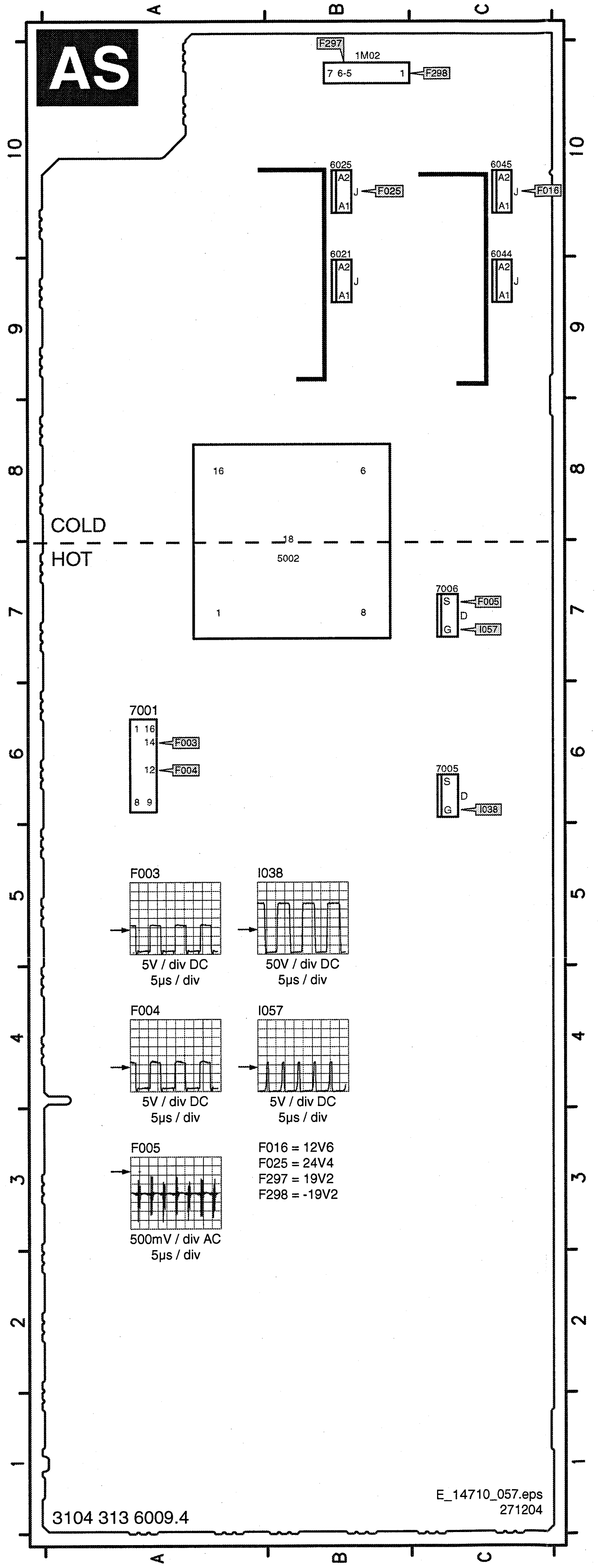

WIRING DIAGRAM
0345_3_KR
E Top Control Panel
SA Standby Supply / Audio
1736 3_KR
1735 3_KR
1M02_7_KR
1739_9_KR
1313_16_IDE
1312_16_IDE
1317_11_KR
1315_10_KR
1304_4_VH
1309_3_VH
1306_2_VH
1307_4_VH
1305_3_HR
1M46_11_KR
1M03_10_KR
LVDS CONNECTOR
AS MF Supply
1M02_7_HR
1304_4_VH
1309_3_VH
1307_4_VH
1306_2_VH
1305_3_HR
1308_2_VH
Mains outlet
LPL
AUO
AUO
LPL
RES
RES
8735
8313
8312
8317
8315
8302
8304
8309
8306
8307
8736
8305
8350
8346
8303
8352
8345
8336
8320
8308
Lspeak posilock
Right Speaker
Lspeak posilock
Left Speaker
A LC04 SSB
1M46_11_KR
(1251)
1G51_31_FI
(1450)
1M03_10_KR
(1403)
1M52_9_KR
(1752)
1M02_7_HR
(1702)
1735_4_KR
1M36_12_KR
(1336)
1M01_3_KR
(1402)
1320_10_KR
(1M20)
1408_3_KR
1301_3_KR
D Side I/O
0936_11_HR
J LED/SWITCH
0320_10_KR
E_14710_032.eps
240105

Block Diagram Supply and Standby


SUPPLY + STANDBY
AS1 MAINS FILTER + STANDBY
1308
1400
T3.15AH
5401
5402
5403
MAINS FILTER
MAINS IN
EUR: 198 - 264V~
CHINA: 160 - 270V~
US: 108 - 132V~
APmulti: 90 - 175V~
EUR, CHINA 1X MAINS FILTER + HORMONIC COIL
US, AP 2X MAINS FILTER + IR INRUSH CURRENT
1450
6807
GBJ6J
3810
7805
7806
VOLTAGE DOUBLER (for 110V only)
2815
2816
US DOUBLER
AP AUTO DOUBLER
WITH TRIAC
HOT
COLD
1305
6506
DF06M
2503
1401
T1AE
1306
3101
6155
6154
1307
AS2 SUPPLY
25V_HOT
400V_HOT
BIAS SUPPLY
3000
6079
6078
2003
3007
7001
MC34067P
VCC
15
OSCC
CONTROL
ERROR
OA
OB
SOST
FI
F003
F004
7017
7018
SOFT START + CURRENT PROTECTION
7004
7009
OVER VOLTAGE PROTECTION
5001
7007
7020
HIGH SIDE DRIVE
I038
7005
STU16NB501
F005
5040
7008,
7021, 7022
LOW SIDE DRIVE
I057
7006
STU16NB501
2011
PRINTED COMPONENT
HOT
COLD
3057
7002
TCET1102
DC_PROT
DC_PROT
5002
5027
6044
STPS20L45CT
5028
6045
STPS20L45CT
5025
6021
STPS20H100CT
5026
6025
STPS20H100CT
2038
2021
3022
3052
F016
+12V
F025
+24V
7010
TL431ACD
3030
3024
3026
VS Voltage Adj.
1304
1007
T5A
2291
6291
5239
F297
VSND_POS
5291
GND_SND
6293
2293
5292
F298
VSND_NEG
1M02
DC_PROT
TO 1M02
SA3
AUDIO
SA1 CONNECTIONS
1304
+12V_A
+12V_+24V
SEE ALSO BLOCK DIAGRAM SUPPLY LINE
SA2 STANDBY
1305
+5V2-RELAY-IO2
THYRISTOR
7505/7509/7560
OVERVOLTAGE PROTECTION
STANDBY
1306
F194
COLD
HOT
5500
7507
7506
7512
STANDBY
5110
6504
3509
7511
6140
I198
VTUN
+11V
7100
7101
7105
CONTROL
I130
7102
3V MAX
1V MAX STBY
3108
5105
5507
F136
+12V
I104
+8V6
7131
6505
6107
5103
2513
I138
5506
+5V2
STANDBY
STANDBY: LOW = ON
HIGH = STBY
3128
6122
7501
TCET1102
OVERVOLTAGE PROTECTION
7531
F109
+5V_SW
3158
PROT_AUDIOSUPPLY
1307
400V_HOT
6150
6151
3155
7150
TCET1102
6153
+5V2
+5V2-RELAY-IO2
7508
OR
9110
POR
+5V2-RELAY-IO2
+12V_A
SA1 CONNECTIONS
1M03
PROT_AUDIOSUPPLY
STANDBY
TO 1403
A9
CONNECTIONS
1M46
TO 1251
A15
CONNECTIONS
E_14710_033.eps
231204

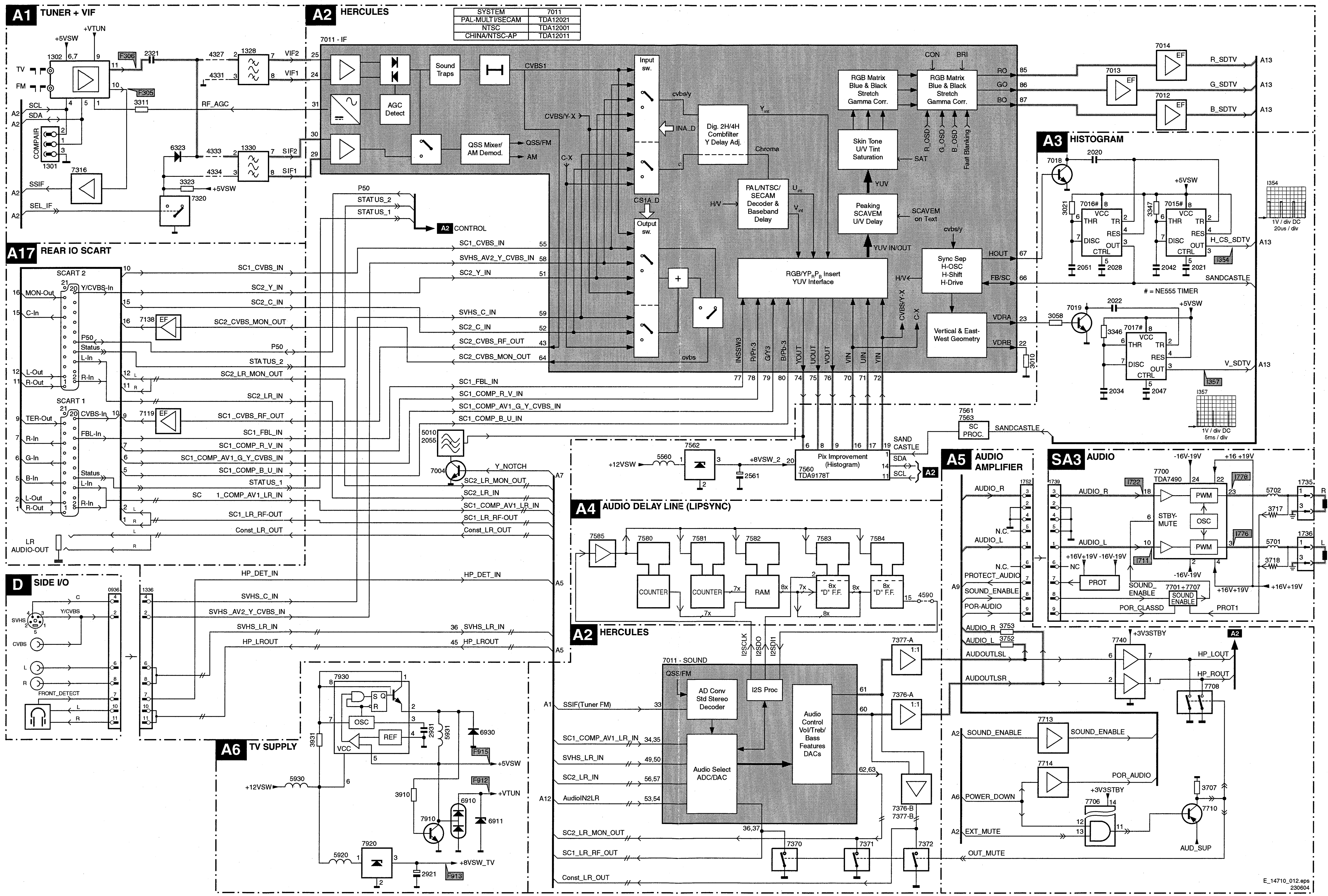
Testpoint Overview Supply and Standby


SA
COLD
HOT
7700
I776
I711
I722
I778
7102
G
D
S
I130
5500
2506
7501
7150
1306
F124
1305
F125
6140
I198
6104
I138
1M46
F109
F136
F135
I130
5V / div DC
5µs / div
I711
200mV / div DC
2ms / div
I722
200mV / div DC
2ms / div
I776
10V / div DC
2us / div
I778
20V / div AC
2us / div
F109 = 5V2
F124 = 263V
F125 = 5V1
F135 = 8V9
F136 = 12V5
I138 = 5V2
I198 = 13V9
3104 313 6010.4
G
F
E
D
C
B
A
1
2
3
4

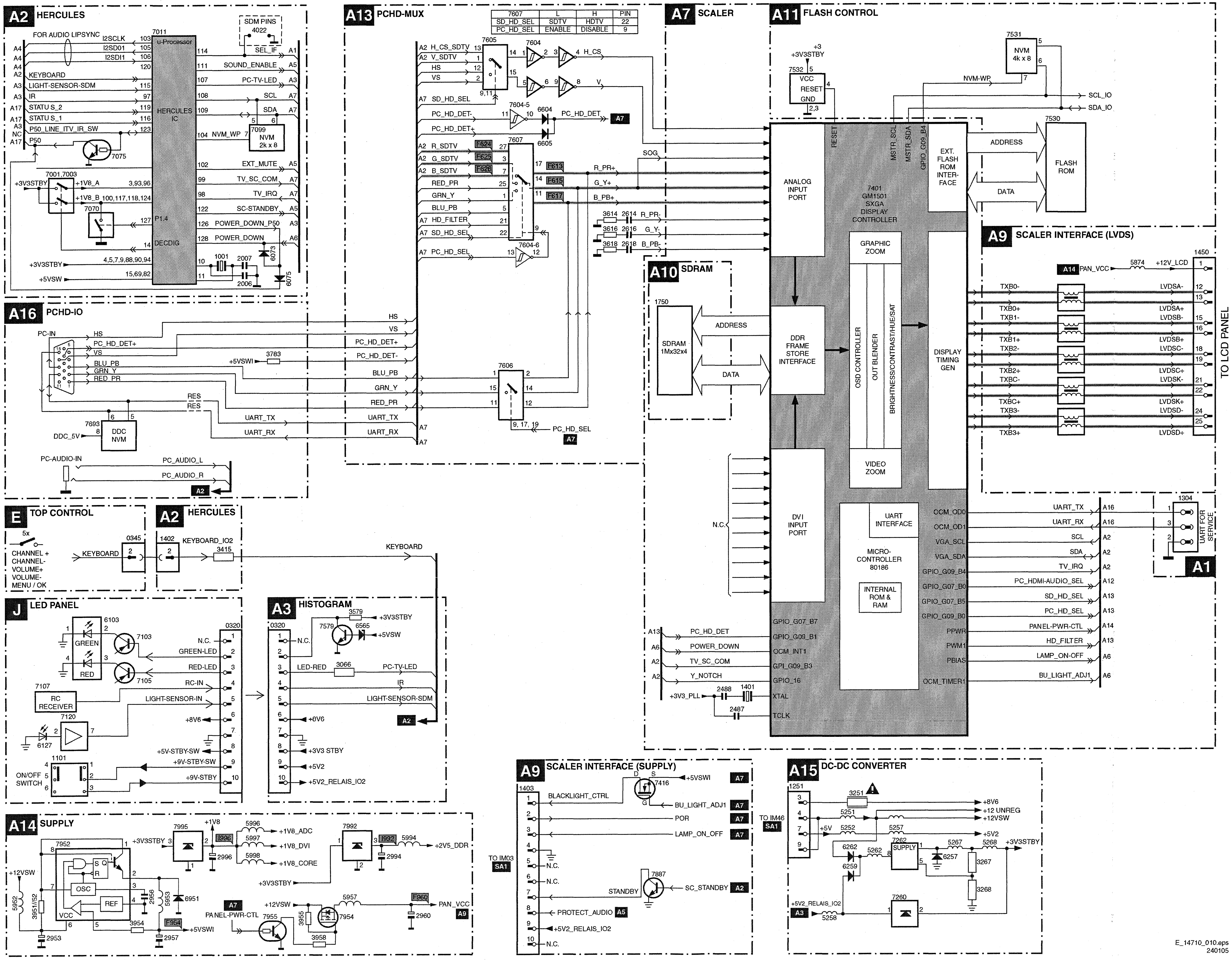

AS
F297
1M02
F298
6025
F025
6045
F016
6021
6044
5002
COLD
HOT
7006
F005
I057
7001
F003
F004
7005
I038
F003
5V / div DC
5µs / div
I038
50V / div DC
5µs / div
F004
5V / div DC
5µs / div
I057
5V / div DC
5µs / div
F005
500mV / div AC
5µs / div
F016 = 12V6
F025 = 24V4
F297 = 19V2
F298 = -19V2
3104 313 6009.4
E_14710_057.eps
271204
A
B
C
1
2
3
4
5
6
7
8
9
10

Block Diagram Audio and Video

SYSTEM	7011
PAL-MULTI/SECAM	TDA12021
NTSC	TDA12001
CHINA/NTSC-AP	TDA12011


A1 TUNER + VIF
+5VSW
+VTUN
1302
TV
FM
SCL
SDA
COMPAIR
1301
7316
SSIF
SEL_IF
F306
F305
2321
3311
RF_AGC
6323
3323
+5VSW
7320
4327
4331
4333
4334
1328
1330
VIF2
VIF1
SIF2
SIF1
A2 HERCULES
7011 - IF
Sound Traps
AGC Detect
QSS Mixer/ AM Demod.
QSS/FM
AM
CVBS1
CVBS/Y-X
C-X
Input sw.
Output sw.
cvbs/y
INA..D
CS1A..D
Dig. 2H/4H Combfilter Y Delay Adj.
Chroma
PAL/NTSC/ SECAM Decoder & Baseband Delay
H/V
RGB/YPRPB Insert YUV Interface
RGB Matrix Blue & Black Stretch Gamma Corr.
CON
BRI
R_OSD
G_OSD
B_OSD
Fast Blanking
Skin Tone U/V Tint Saturation
SAT
YUV
Peaking SCAVEM U/V Delay
SCAVEM on Text
YUV IN/OUT
Sync Sep H-OSC H-Shift H-Drive
HOUT
FB/SC
Vertical & East-West Geometry
VDRA
VDRB
RO
GO
BO
INSSW3
R/Pr-3
G/Y3
B/Pb-3
YOUT
UOUT
VOUT
YIN
UIN
VIN
P50
STATUS_2
STATUS_1
A2 CONTROL
SC1_CVBS_IN
SVHS_AV2_Y_CVBS_IN
SC2_Y_IN
SVHS_C_IN
SC2_C_IN
SC2_CVBS_RF_OUT
SC2_CVBS_MON_OUT
SC1_FBL_IN
SC1_COMP_R_V_IN
SC1_COMP_AV1_G_Y_CVBS_IN
SC1_COMP_B_U_IN
7014
7013
7012
EF
R_SDTV
G_SDTV
B_SDTV
A13
A3 HISTOGRAM
7018
2020
7016#
7015#
VCC
THR
TR
RES
DISC
OUT
CTRL
3021
3347
2051
2028
2042
2021
H_CS_SDTV
I354
1V / div DC 20us / div
SANDCASTLE
# = NE555 TIMER
7019
2022
3058
3346
7017#
2034
2047
V_SDTV
I357
1V / div DC 5ms / div
3010
A17 REAR IO SCART
SCART 2
SCART 1
MON-Out
C-In
L-Out
R-Out
Y/CVBS-In
P50
Status
L-In
R-In
7138
7119
TER-Out
CVBS-In
FBL-In
G-In
B-In
SC2_CVBS_MON_OUT
SC2_LR_MON_OUT
SC2_LR_IN
SC1_CVBS_RF_OUT
SC1_FBL_IN
SC1_COMP_R_V_IN
SC1_COMP_AV1_G_Y_CVBS_IN
SC1_COMP_B_U_IN
STATUS_1
SC1_COMP_AV1_LR_IN
SC1_LR_RF-OUT
Const_LR_OUT
LR AUDIO-OUT
5010
2055
7004
Y_NOTCH
7561
7563
SC PROC.
7562
5560
+12VSW
+8VSW_2
2561
Pix Improvement (Histogram)
7560 TDA9178T
SDA
SCL
SAND CASTLE
A4 AUDIO DELAY LINE (LIPSYNC)
7585
7580
7581
7582
7583
7584
COUNTER
RAM
"D" F.F.
4590
D SIDE I/O
0936
1336
SVHS
CVBS
Y/CVBS
FRONT_DETECT
HP_DET_IN
SVHS_C_IN
SVHS_AV2_Y_CVBS_IN
SVHS_LR_IN
HP_LROUT
A5
A7
A6 TV SUPPLY
7930
OSC
REF
VCC
3931
2931
5931
6930
F915
+5VSW
+12VSW
5930
3910
7910
6910
6911
F912
+VTUN
5920
7920
2921
F913
+8VSW_TV
A2 HERCULES
7011 - SOUND
QSS/FM
AD Conv Std Stereo Decoder
I2S Proc
I2SCLK
I2SDO
I2SDI1
Audio Select ADC/DAC
Audio Control Vol/Treb/ Bass Features DACs
SSIF(Tuner FM)
SC1_COMP_AV1_LR_IN
SVHS_LR_IN
SC2_LR_IN
AudioIN2LR
SC2_LR_MON_OUT
SC1_LR_RF_OUT
Const_LR_OUT
A1
A12
7377-A
7376-A
7376-B
7377-B
7370
7371
7372
A5 AUDIO AMPLIFIER
1752
AUDIO_R
AUDIO_L
PROTECT_AUDIO
SOUND_ENABLE
POR-AUDIO
A9
SA3 AUDIO
1739
7700 TDA7490
STBY-MUTE
PWM
OSC
PROT
SOUND_ENABLE
7701÷7707
POR_CLASSD
PROT1
-16V-19V
+16 +19V
I722
I778
I711
I776
5702
3717
5701
3718
1735
1736
15W/ 8R
AUDIO_R
AUDIO_L
AUDOUTLSL
AUDOUTLSR
3753
3752
7740
+3V3STBY
HP_LOUT
HP_ROUT
7708
7713
SOUND_ENABLE
7714
POR_AUDIO
POWER_DOWN
7706
EXT_MUTE
OUT_MUTE
7710
3707
AUD_SUP
A6
E_14710_012.eps 230604

Block Diagram Audio and Video


A2 HERCULES
FOR AUDIO LIPSYNC
I2SCLK
I2SD01
I2SDI1
KEYBOARD
LIGHT-SENSOR-SDM
IR
STATU S_2
STATU S_1
P50_LINE_ITV_IR_SW
P50
7075
7011
u-Processor
HERCULES IC
P1.4
DECDIG
SDM PINS 4022
SEL_IF
SOUND_ENABLE
PC-TV-LED
SCL
SDA
NVM_WP
7099 NVM 2k x 8
EXT_MUTE
TV_SC_COM
TV_IRQ
SC-STANDBY
POWER_DOWN_P50
POWER_DOWN
7001,7003
+3V3STBY
+1V8_A
+1V8_B
7070
1001
2007
2006
6073
6075
+5VSW
A13 PCHD-MUX
7607 L H PIN
SD_HD_SEL SDTV HDTV 22
PC_HD_SEL ENABLE DISABLE 9
H_CS_SDTV
V_SDTV
HS
VS
SD_HD_SEL
7605
7604
H_CS
V
7604-5
6604
6605
PC_HD_DET
PC_HD_DET-
PC_HD_DET+
R_SDTV
G_SDTV
B_SDTV
RED_PR
GRN_Y
BLU_PB
HD_FILTER
SD_HD_SEL
PC_HD_SEL
F624
F625
F626
F613
F615
F617
SOG
R_PR+
G_Y+
B_PB+
3614 2614 R_PR-
3616 2616 G_Y-
3618 2618 B_PB-
7604-6
7606
9, 17, 19
PC_HD_SEL
A7 SCALER
A10 SDRAM
1750
SDRAM 1Mx32x4
ADDRESS
DATA
A11 FLASH CONTROL
+3V3STBY
7532
VCC
RESET
GND
7531
NVM 4k x 8
NVM-WP
SCL_IO
SDA_IO
7530
FLASH ROM
ADDRESS
DATA
EXT. FLASH ROM INTER-FACE
RESET
MSTR_SCL
MSTR_SDA
GPIO_G09_B4
ANALOG INPUT PORT
7401 GM1501 SXGA DISPLAY CONTROLLER
GRAPHIC ZOOM
DDR FRAME STORE INTERFACE
OSD CONTROLLER
OUT BLENDER
BRIGHTNESS/CONTRAST/HUE/SAT
DISPLAY TIMING GEN
VIDEO ZOOM
DVI INPUT PORT
N.C.
UART INTERFACE
MICRO-CONTROLLER 80186
INTERNAL ROM & RAM
GPIO_G07_B7
GPIO_G09_B1
OCM_INT1
GPI_G09_B3
GPIO_16
XTAL
TCLK
PC_HD_DET
POWER_DOWN
TV_SC_COM
Y_NOTCH
+3V3_PLL
2488
1401
2487
OCM_OD0
OCM_OD1
VGA_SCL
VGA_SDA
GPIO_G09_B4
GPIO_G07_B0
GPIO_G07_B5
GPIO_G09_B0
PPWR
PWM1
PBIAS
OCM_TIMER1
UART_TX
UART_RX
SCL
SDA
TV_IRQ
PC_HDMI-AUDIO_SEL
SD_HD_SEL
PC_HD_SEL
PANEL-PWR-CTL
HD_FILTER
LAMP_ON-OFF
BU_LIGHT_ADJ1
1304
UART FOR SERVICE
A1
A9 SCALER INTERFACE (LVDS)
1450
A14 PAN_VCC
5874
+12V_LCD
TXB0-
TXB0+
TXB1-
TXB1+
TXB2-
TXB2+
TXBC-
TXBC+
TXB3-
TXB3+
LVDSA-
LVDSA+
LVDSB-
LVDSB+
LVDSC-
LVDSC+
LVDSK-
LVDSK+
LVDSD-
LVDSD+
TO LCD PANEL
A16 PCHD-IO
PC-IN
HS
PC_HD_DET+
VS
BLU_PB
GRN_Y
RED_PR
+5VSWI
3783
RES
7693
DDC NVM
DDC_5V
UART_TX
UART_RX
PC_HD_DET-
PC-AUDIO-IN
PC_AUDIO_L
PC_AUDIO_R
E TOP CONTROL
5x
CHANNEL +
CHANNEL-
VOLUME+
VOLUME-
MENU / OK
KEYBOARD
0345
A2 HERCULES
1402
KEYBOARD_IO2
3415
J LED PANEL
6103
GREEN
RED
7103
7105
7107
RC RECEIVER
7120
6127
1101
ON/OFF SWITCH
0320
N.C.
GREEN-LED
RED-LED
RC-IN
LIGHT-SENSOR-IN
+8V6
+5V-STBY-SW
+9V-STBY-SW
+9V-STBY
A3 HISTOGRAM
3579
+3V3STBY
7579
6565
+5VSW
LED-RED
3066
PC-TV-LED
IR
LIGHT-SENSOR-SDM
+3V3 STBY
+5V2
+5V2_RELAIS_IO2
A14 SUPPLY
7952
OSC
REF
VCC
+12VSW
5952
3951/52
2953
2956
5953
6951
3954
F954
2957
+5VSWI
7995
+1V8
I996
5996
5997
5998
+1V8_ADC
+1V8_DVI
+1V8_CORE
2996
7992
I992
5994
+2V5_DDR
2994
PANEL-PWR-CTL
7955
3955
7954
3958
5957
F960
PAN_VCC
2960
A9 SCALER INTERFACE (SUPPLY)
1403
BLACKLIGHT_CTRL
7416
+5VSWI
BU_LIGHT_ADJ1
POR
LAMP_ON_OFF
N.C.
STANDBY
7887
SC_STANDBY
PROTECT_AUDIO
+5V2_RELAIS_IO2
TO IM03 SA1
TO IM46 SA1
A15 DC-DC CONVERTER
1251
3251
+8V6
+12 UNREG
+12VSW
5251
5252
5257
+5V
+5V2
6262
6259
5262
7262 SUPPLY
5267
5268
6257
3267
3268
+3V3STBY
7260
5258

E_14710_010.eps
240105

Testpoint Overview SSB (Top Side)

F002	B2
F003	D2
F004	B4
F005	C4
F006	C4
F007	B3
F008	B3
F009	B3
F010	B2
F011	B2
F012	B3
F013	C3
F014	C3
F018	C3
F019	B4
F020	C3
F021	B4
F022	B3
F023	B3
F024	B1
F025	B1
F026	C1
F027	B1
F028	C3
F029	C3
F030	C3
F031	C3
F032	C3
F033	C4
F034	C3
F035	C3
F036	C3
F037	A2
F038	C3
F039	B2
F040	C3
F041	B3
F042	C4
F043	C3
F044	B4
F045	C4
F046	C3
F047	C3
F048	B1
F049	C3
F050	C4
F051	C3
F052	C3
F053	C3
F058	C4
F060	B4
F061	C4
F062	C4
F063	C4
F067	C4
F068	C4
F069	C4
F071	B4
F072	B1
F073	A4
F075	B3
F076	B3
F077	B1
F078	B1
F079	B1
F080	B1
F081	B1
F082	C1
F083	B1
F087	B3
F088	B3
F089	B2
F090	C3
F093	C2
F094	C3
F095	C4
F096	C4
F099	A3
F101	D3
F101	D3
F102	D4
F102	D4
F103	D3
F103	D3
F104	D5
F104	D5
F105	D3
F105	D3
F106	D3
F106	D3
F107	D2
F107	D2
F108	D5
F108	D5
F109	D3
F109	D3
F110	D5
F110	D5
F111	D3
F111	D3
F113	D3
F113	D3
F115	D3
F115	D3
F117	D4
F117	D4
F119	D4
F119	D4
F120	D4
F120	D4
F121	D4
F121	D4
F127	D4
F127	D4
F128	D4
F128	D4
F129	D5
F129	D5
F133	D4
F133	D4
F134	D5
F134	D5
F135	D5
F135	D5
F137	D5
F137	D5
F141	D5
F141	D5
F143	D6
F143	D6
F147	D6
F147	D6
F148	D6
F148	D6
F153	D6
F153	D6
F154	D5
F154	D5
F156	D6
F156	D6
F157	D5
F157	D5
F158	D5
F158	D5
F159	D5
F159	D5
F160	D5
F160	D5
F161	D3
F161	D3
F191	D5
F191	D5
F251	A7
F252	A7
F253	A7
F254	A7
F255	A7
F257	A7
F258	A6
F259	A4
F260	B7
F300	B2
F301	C3
F302	D2
F303	D2
F305	C2
F306	C2
F306	C2
F307	C2
F308	D1
F309	B3
F310	C3
F311	C2
F313	D2
F314	D2
F315	D2
F316	C2
F316	C2
F318	C3
F319	B2
F401	C5
F402	A5
F403	A5
F404	A5
F405	A5
F406	A5
F407	A5
F408	A5
F409	A5
F410	A5
F411	B7
F412	B7
F413	B7
F414	B7
F415	B7
F416	B7
F417	B5
F418	B7
F419	A6
F420	C1
F421	C1
F422	B4
F423	B4
F424	B4
F434	A5
F436	A5
F437	A5
F447	B5
F451	B5
F461	B6
F463	B5
F465	C5
F466	C5
F470	B5
F478	B6
F482	A5
F486	B5
F501	B7
F530	A4
F531	B5
F532	B5
F533	B5
F534	B4
F535	B5
F536	A5
F537	A5
F538	A5
F539	A5
F540	A5
F541	A5
F580	A3
F584	B3
F585	A3
F586	A3
F587	B3
F588	B3
F590	A2
F602	C5
F603	C5
F604	C5
F605	C5
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F607	C5
F608	C5
F612	C5
F613	C5
F614	C5
F615	C5
F616	C5
F620	C5
F624	B4
F625	C4
F626	C4
F680	D7
F680	D7
F681	D7
F681	D7
F682	D7
F682	D7
F683	D7
F683	D7
F684	D7
F684	D7
F685	D7
F685	D7
F686	D7
F686	D7
F687	D7
F687	D7
F688	D7
F688	D7
F689	D7
F689	D7
F690	D7
F690	D7
F701	B2
F702	A2
F705	A1
F706	A1
F707	A1
F708	A1
F710	C3
F711	A1
F712	A1
F713	A1
F714	A1
F716	B2
F717	B3
F718	B2
F719	B2
F720	B2
F721	A1
F722	A2
F723	A2
F724	A2
F725	A2
F726	A3
F727	A3
F728	A3
F729	A2
F801	C6
F802	C7
F803	C6
F804	C7
F805	C6
F806	B5
F807	B5
F808	C6
F809	C7
F810	C6
F811	B6
F820	C7
F821	C7
F822	C6
F823	C6
F824	C7
F826	B6
F827	C6
F870	A5
F871	A5
F872	A6
F873	A5
F874	A5
F912	A3
F913	A4
F915	A3
F954	A5
F955	A6
F988	B5
I001	B4
I002	B2
I003	B2
I005	B3
I006	B3
I007	B3
I008	B4
I009	B2
I010	B2
I011	B3
I012	C2
I013	B4
I015	C1
I016	B4
I018	B2
I019	B3
I020	B2
I022	B3
I023	B4
I024	B4
I025	C3
I026	C3
I028	C3
I030	B3
I032	C3
I033	C3
I034	C3
I036	B4
I037	C3
I039	B4
I042	B4
I044	B4
I051	C4
I052	C4
I054	B4
I055	C4
I056	C4
I057	B4
I058	B4
I059	C3
I060	B2
I061	B4
I063	C3
I064	B3
I065	B3
I067	B3
I068	B3
I069	C4
I071	B4
I072	B4
I073	C3
I074	C3
I075	D1
I076	B4
I078	C3
I079	B4
I080	B4
I081	C4
I082	C4
I086	C1
I087	C1
I088	C1
I089	C1
I090	C1
I091	D1
I092	D1
I093	D1
I094	C1
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I102	D3
I104	D3
I104	D3
I106	D3
I106	D3
I110	D2
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I112	D3
I114	D3
I114	D3
I116	D4
I116	D4
I118	D4
I118	D4
I119	D4
I119	D4
I120	D4
I120	D4
I126	D5
I126	D5
I128	D4
I128	D4
I132	D4
I132	D4
I136	D5
I136	D5
I139	D5
I139	D5
I140	D5
I140	D5
I142	D5
I142	D5
I150	D3
I150	D3
I251	A7
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I253	A7
I254	A7
I255	A7
I256	C7
I257	C7
I258	C7
I259	C7
I260	B7
I261	A7
I262	A7
I263	A7
I264	A7
I304	D1
I313	C2
I317	C3
I318	C2
I319	C2
I320	C2
I321	C2
I322	C2
I324	C2
I325	C2
I348	A3
I349	A3
I350	A3
I351	A3
I352	A3
I353	A4
I354	A3
I355	A3
I356	A4
I357	A4
I358	A4
I359	A4
I360	C1
I361	A3
I371	C3
I386	B4
I387	B4
I388	B3
I423	B5
I424	B5
I425	B5
I426	B5
I427	B6
I428	B6
I429	B6
I436	B6
I437	A4
I438	B5
I439	B5
I440	B5
I441	B5
I442	B5
I443	B5
I444	B6
I445	B6
I446	B5
I449	B5
I450	B5
I451	B5
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I458	A5
I459	B5
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I624	C5
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I626	C5
I627	C5
I628	C5
I629	C5
I630	C5
I631	C5
I632	C5
I633	C5
I634	C5
I635	C5
I636	C5
I637	C5
I638	C5
I639	C5
I680	D6
I680	D6
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I681	D7
I682	D7
I683	D6
I684	C6
I685	D6
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I699	D6
I699	D6
I700	D6
I700	D6
I701	C2
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I702	B2
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I704	B2
I705	B2
I706	B2
I707	B2
I709	A2
I710	C2
I711	C2
I712	A2
I713	B2
I714	C2
I715	C2
I716	C2
I717	C2
I718	A2
I719	A2
I721	B2
I722	D6
I723	D6
I724	B2
I725	A2
I726	B1
I727	B2
I728	C1
I729	A2
I730	B3
I731	A3
I735	A1
I736	A1
I737	A1
I738	A1
I739	C2
I740	B2
I741	B2
I742	B2
I802	C7
I803	C7
I815	C6
I816	C6
I819	C6
I822	C7
I823	C7
I824	C6
I825	C6
I826	C7
I827	C6
I828	C6
I834	C6
I836	C6
I838	C6
I840	C6
I841	C6
I842	C6
I844	B6
I847	C6
I848	C6
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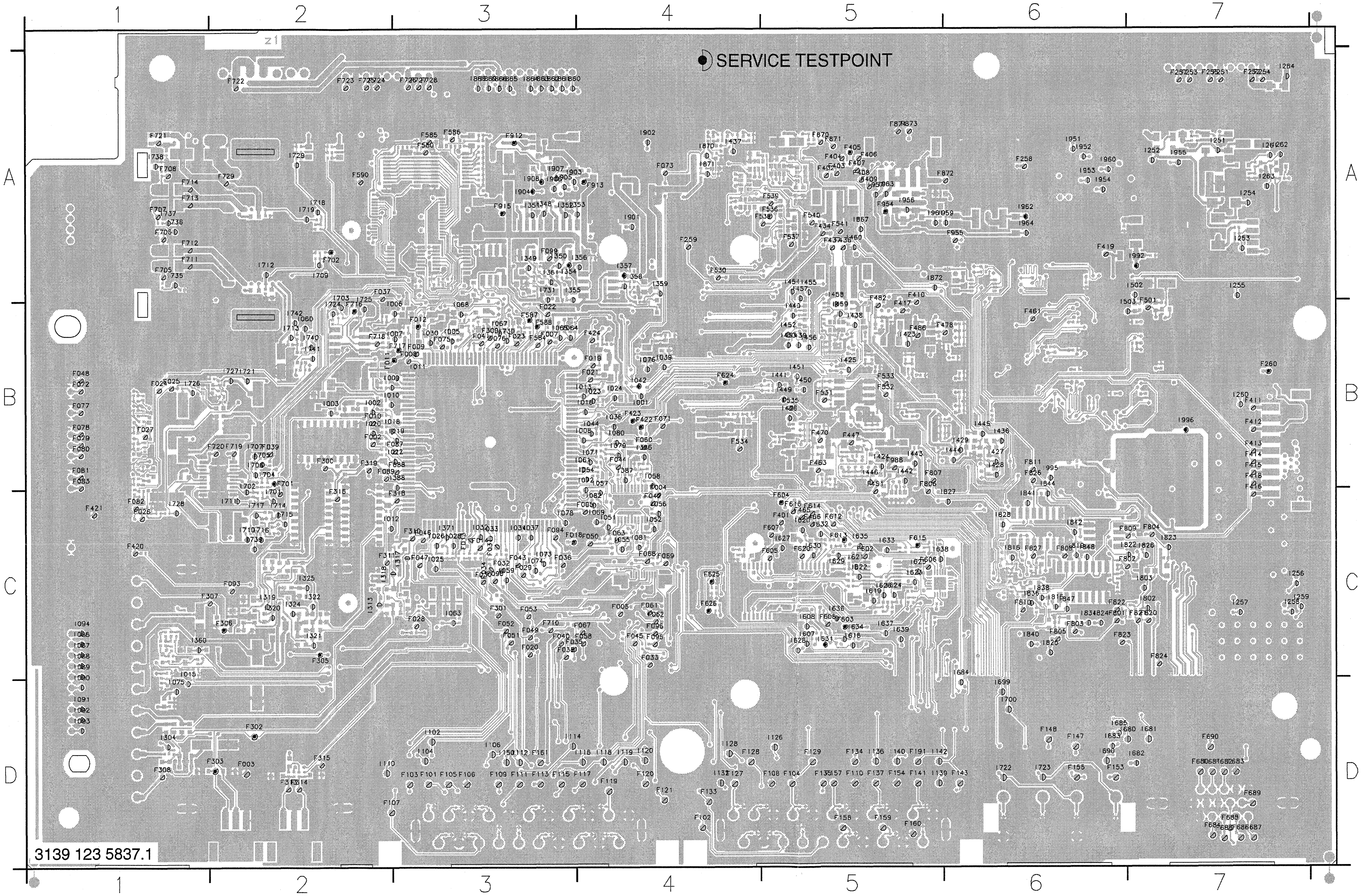
I861	A3
I862	A3
I863	A3
I864	A3
I865	A3
I866	A3
I867	A5
I868	A3
I869	A3
I870	A4
I871	A4
I872	A5
I901	A4
I902	A4
I903	A3
I904	A3
I905	A3
I906	A3
I907	A3
I908	A3
I951	A6
I952	A6
I953	A6
I954	A6
I955	A7
I956	A5
I957	A5
I959	A6
I960	A6
I961	A5
I962	A6
I963	A5
I964	A6
I992	A7
I995	B6
I996	B7



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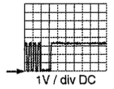
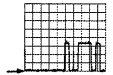
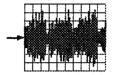
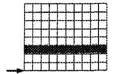
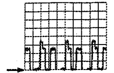
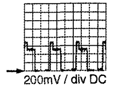

1V / div DC
20us / div

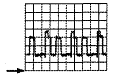
F303

1V / div DC
20us / div

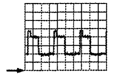
F306

200mV / div AC
20us / div

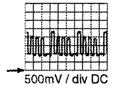
F405

500mV / div DC
20us / div

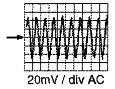
F613

200mV / div DC
20us / div

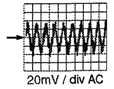
F615

200mV / div DC
20us / div

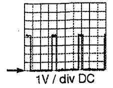
F624

500mV / div DC
20us / div

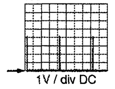
F625

500mV / div DC
20us / div

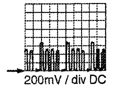
F626

500mV / div DC
20us / div

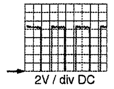
F701

20mV / div AC
1ms / div

F702

20mV / div AC
1ms / div

I354

1V / div DC
20us / div

I357

1V / div DC
5ms / div

I631

200mV / div DC
20us / div

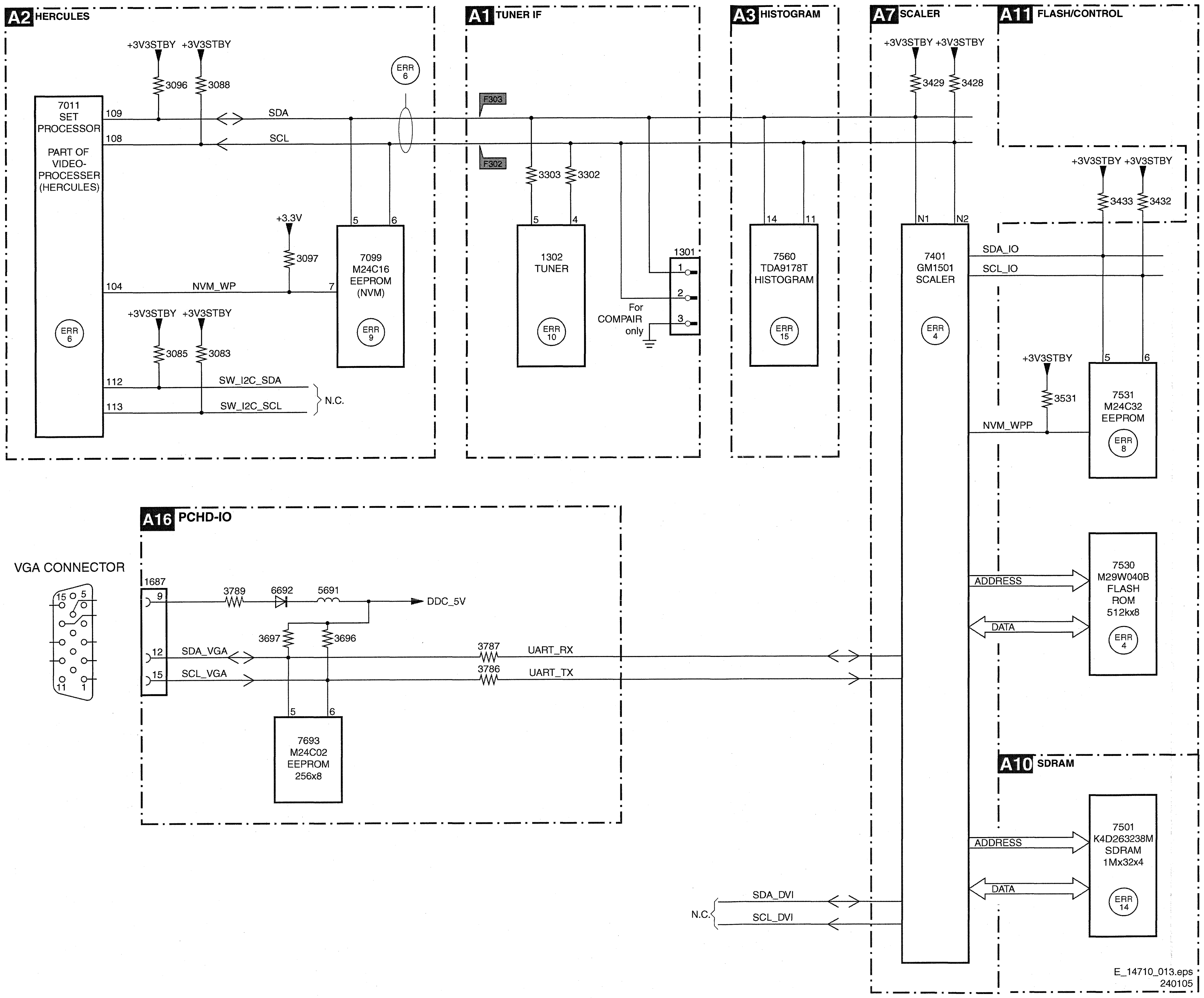
I904

2V / div DC
5us / div

F011	1V9
F012	1V9
F903	11V9
F905	3V3
F906	11V6
F915	5V3
F912	33V7
F913	8V
F958	11V6
F960	11V4
F954	5V4
F992	2V5
F996	1V8

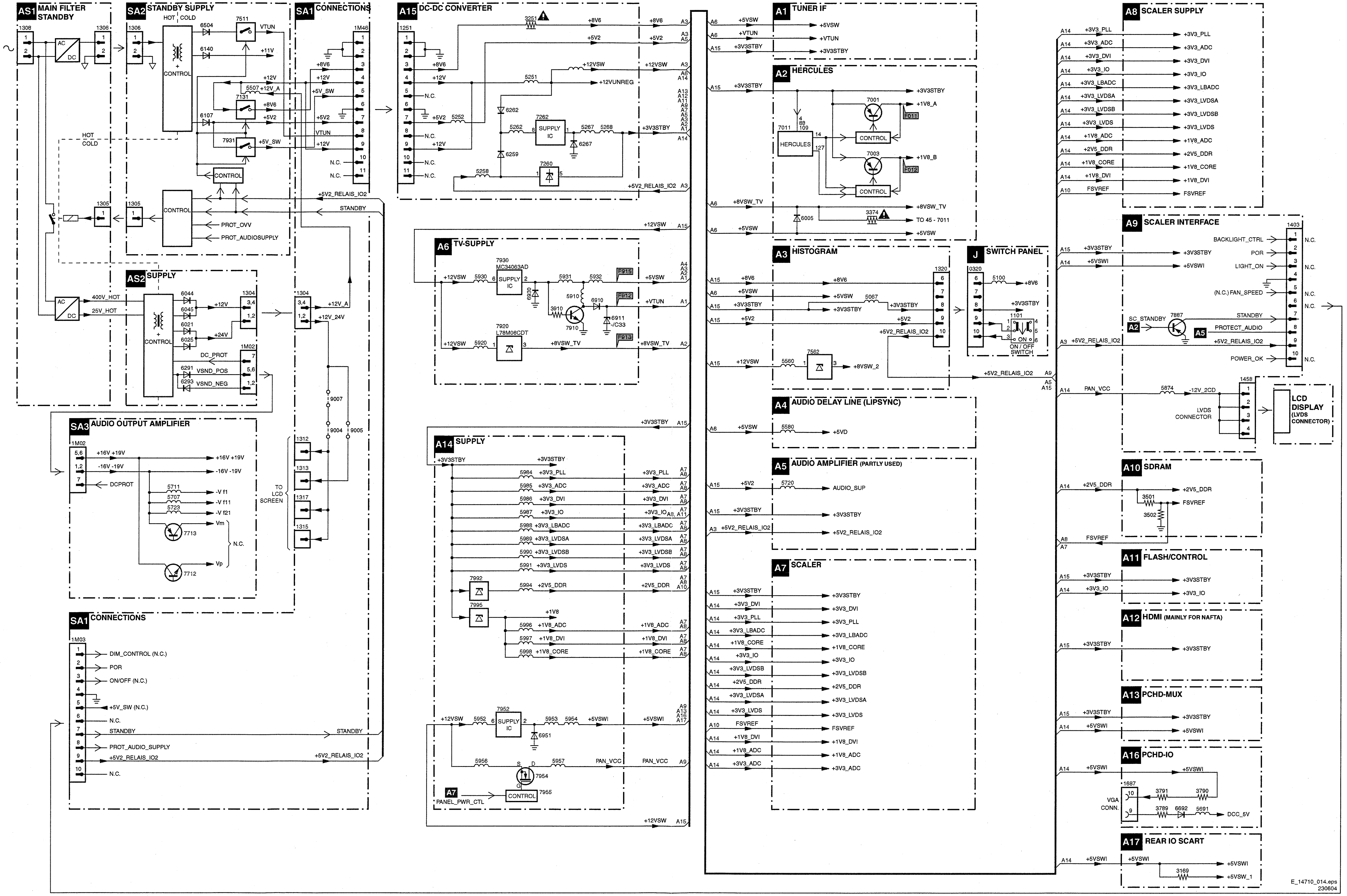
E_14710_036.eps
020904

I2C IC Overview

I2C BUS INTERCONNECTION DIAGRAM

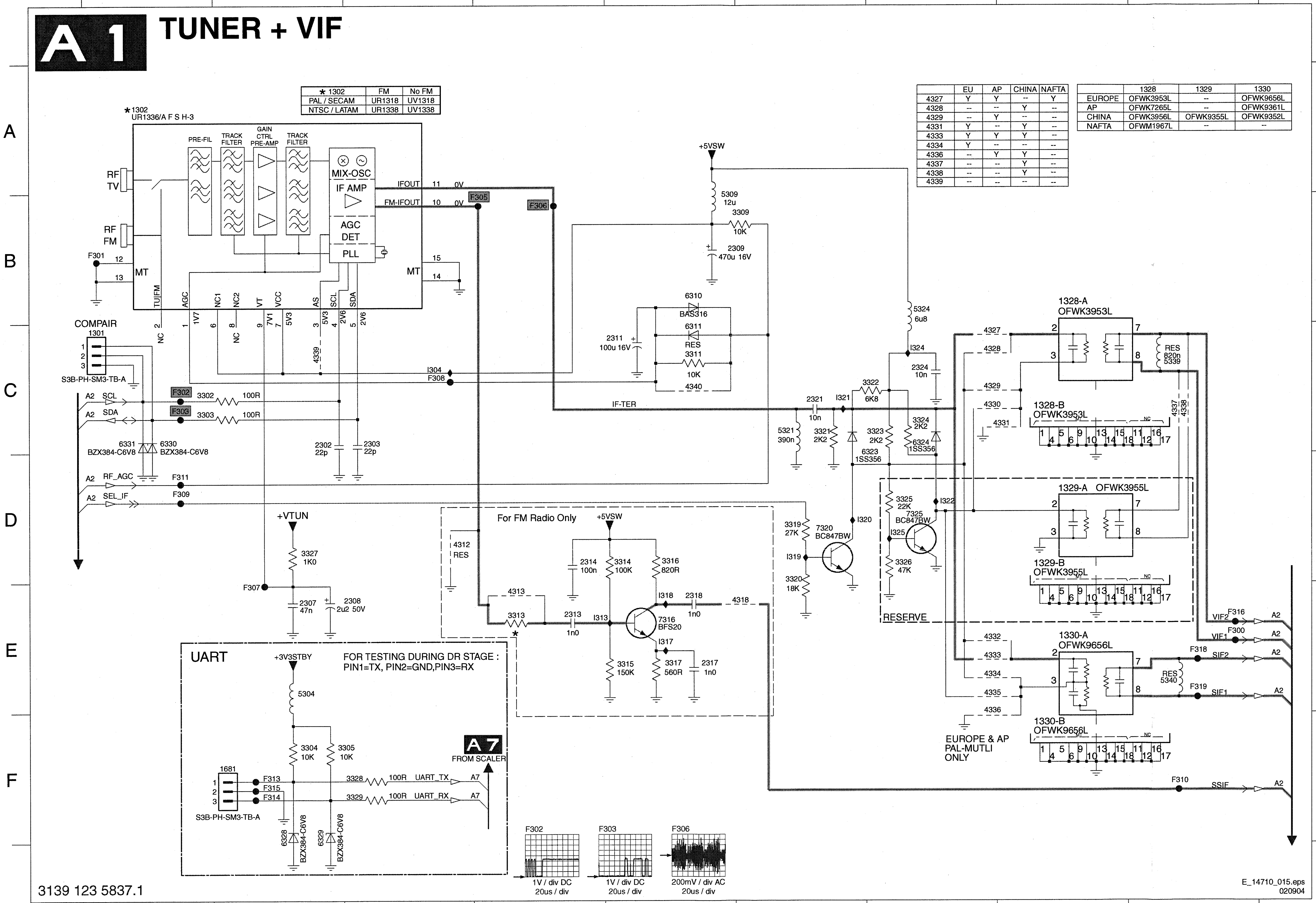

A2 HERCULES
+3V3STBY +3V3STBY
3096 3088
ERR 6
7011 SET PROCESSOR
PART OF VIDEO-PROCESSER (HERCULES)
109 SDA
108 SCL
+3.3V
3097
104 NVM_WP 7
5 6
7099 M24C16 EEPROM (NVM)
ERR 9
+3V3STBY +3V3STBY
3085 3083
112 SW_I2C_SDA
113 SW_I2C_SCL
N.C.
ERR 6
A1 TUNER IF
F303
F302
3303 3302
5 4
1302 TUNER
ERR 10
1301
1 2 3
For COMPAIR only
A3 HISTOGRAM
14 11
7560 TDA9178T HISTOGRAM
ERR 15
A7 SCALER
+3V3STBY +3V3STBY
3429 3428
N1 N2
7401 GM1501 SCALER
ERR 4
A11 FLASH/CONTROL
+3V3STBY +3V3STBY
3433 3432
SDA_IO
SCL_IO
+3V3STBY
3531
5 6
7531 M24C32 EEPROM
ERR 8
NVM_WPP
ADDRESS
DATA
7530 M29W040B FLASH ROM 512kx8
ERR 4
A10 SDRAM
ADDRESS
DATA
7501 K4D263238M SDRAM 1Mx32x4
ERR 14
SDA_DVI
SCL_DVI
N.C.
VGA CONNECTOR
15 5
11 1
A16 PCHD-IO
1687
9
3789 6692 5691
DDC_5V
3697 3696
12 SDA_VGA
15 SCL_VGA
3787 UART_RX
3786 UART_TX
5 6
7693 M24C02 EEPROM 256x8
E_14710_013.eps
240105

Supply Voltage Overview


AS1 MAIN FILTER STANDBY
SA2 STANDBY SUPPLY
SA1 CONNECTIONS
A15 DC-DC CONVERTER
A1 TUNER IF
A8 SCALER SUPPLY
A2 HERCULES
AS2 SUPPLY
A6 TV-SUPPLY
A3 HISTOGRAM
J SWITCH PANEL
A9 SCALER INTERFACE
A4 AUDIO DELAY LINE (LIPSYNC)
SA3 AUDIO OUTPUT AMPLIFIER
A14 SUPPLY
A5 AUDIO AMPLIFIER (PARTLY USED)
A10 SDRAM
A7 SCALER
A11 FLASH/CONTROL
SA1 CONNECTIONS
A12 HDMI (MAINLY FOR NAFTA)
A13 PCHD-MUX
A16 PCHD-IO
A17 REAR IO SCART
LCD DISPLAY (LVDS CONNECTOR)
TO LCD SCREEN
HOT
COLD
CONTROL
+5V2_RELAIS_IO2
STANDBY
PROT_OVV
PROT_AUDIOSUPPLY
400V_HOT
25V_HOT
DC_PROT
VSND_POS
VSND_NEG
+12V_A
+12V_24V
+8V6
+5V2
+12VSW
+12VUNREG
+3V3STBY
+5VSW
+VTUN
+8VSW_TV
+5VSWI
PAN_VCC
PANEL_PWR_CTL
+3V3_PLL
+3V3_ADC
+3V3_DVI
+3V3_IO
+3V3_LBADC
+3V3_LVDSA
+3V3_LVDSB
+3V3_LVDS
+1V8_ADC
+2V5_DDR
+1V8_CORE
+1V8_DVI
FSVREF
+1V8_A
+1V8_B
TO 45 - 7011
AUDIO_SUP
+5VD
+8VSW_2
BACKLIGHT_CTRL
POR
LIGHT_ON
(N.C.) FAN_SPEED
STANDBY
PROTECT_AUDIO
POWER_OK
LVDS CONNECTOR
VGA CONN.
DCC_5V
+5VSW_1
DIM_CONTROL (N.C.)
ON/OFF (N.C.)
+5V_SW (N.C.)
PROT_AUDIO_SUPPLY
DCPROT
ON / OFF SWITCH
N.C.
E_14710_014.eps
230604

7. Circuit Diagrams and PWB Layouts

SSB: Tuner and VIF


1 2 3 4 5 6 7 8 9
A B C D E F
A1
TUNER + VIF
*1302
UR1336/A F S H-3
RF TV
RF FM
PRE-FIL
TRACK FILTER
GAIN CTRL PRE-AMP
TRACK FILTER
MIX-OSC
IF AMP
AGC DET
PLL
IFOUT 11 0V
FM-IFOUT 10 0V
MT
TU/FM AGC NC1 NC2 VT VCC AS SCL SDA
F301
F305
F306
COMPAIR
1301
S3B-PH-SM3-TB-A
A2 SCL
A2 SDA
F302 3302 100R
F303 3303 100R
6331 BZX384-C6V8
6330 BZX384-C6V8
2302 22p
2303 22p
A2 RF_AGC F311
A2 SEL_IF F309
I304 F308
4339
IF-TER
+5VSW
5309 12u
3309 10K
2309 470u 16V
6310 BAS316
6311
RES 3311 10K
4340
2311 100u 16V
+VTUN
3327 1K0
F307
2307 47n
2308 2u2 50V
For FM Radio Only
4312 RES
4313
3313
2313 1n0
I313
2314 100n
3314 100K
3316 820R
7316 BFS20
I318 2318 1n0
4318
I317
3315 150K
3317 560R
2317 1n0
5324 6u8
I324
2324 10n
2321 10n
I321
3322 6K8
5321 390n
3321 2K2
3323 2K2
3324 2K2
6323 1SS356
6324 1SS356
3319 27K
7320 BC847BW
I319
I320
3320 18K
3325 22K
7325 BC847BW
I325
I322
3326 47K
RESERVE
1328-A OFWK3953L
1328-B OFWK3953L
1329-A OFWK3955L
1329-B OFWK3955L
1330-A OFWK9656L
1330-B OFWK9656L
RES 820n 5339
RES 5340
4327 4328 4329 4330 4331 4332 4333 4334 4335 4336 4337 4338
EUROPE & AP PAL-MUTLI ONLY
VIF2 F316
VIF1 F300
F318 SIF2
F319 SIF1
F310 SSIF
A2
UART
+3V3STBY
FOR TESTING DURING DR STAGE : PIN1=TX, PIN2=GND,PIN3=RX
5304
3304 10K
3305 10K
A7 FROM SCALER
1681
F313 F315 F314
3328 100R UART_TX A7
3329 100R UART_RX A7
S3B-PH-SM3-TB-A
6328 BZX384-C6V8
6329 BZX384-C6V8
F302 1V / div DC 20us / div
F303 1V / div DC 20us / div
F306 200mV / div AC 20us / div
3139 123 5837.1
E_14710_015.eps 020904

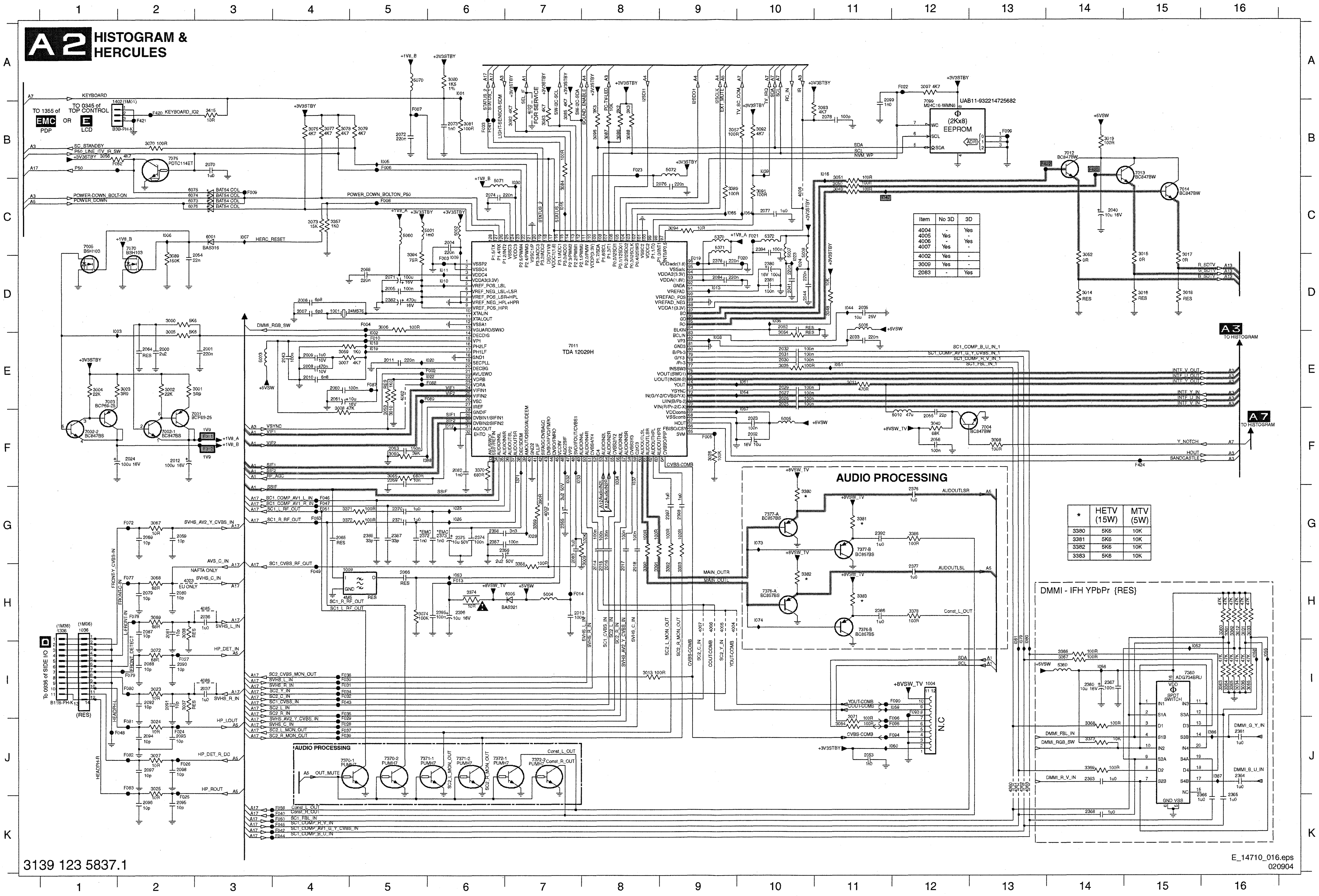
★ 1302	FM	No FM
PAL / SECAM	UR1318	UV1318
NTSC / LATAM	UR1338	UV1338

	EU	AP	CHINA	NAFTA
4327	Y	Y	--	Y
4328	--	--	Y	--
4329	--	Y	--	--
4331	Y	--	Y	--
4333	Y	Y	Y	--
4334	Y	--	--	--
4336	--	Y	Y	--
4337	--	--	Y	--
4338	--	--	Y	--
4339	--	--	--	--

	1328	1329	1330
EUROPE	OFWK3953L	--	OFWK9656L
AP	OFWK7265L	--	OFWK9361L
CHINA	OFWK3956L	OFWK9355L	OFWK9352L
NAFTA	OFWM1967L	--	--

1301	C1
1302	A1
1328-A	B8
1328-B	C8
1329-A	D8
1329-B	D8
1330-A	E8
1330-B	F8
1681	F2
2302	C2
2303	C3
2307	E2
2308	E3
2309	B6
2311	C5
2313	E4
2314	D4
2317	E5
2318	E5
2321	C6
2324	C7
3302	C1
3303	C1
3304	F2
3305	F3
3309	B6
3311	C5
3313	E4
3314	D5
3315	E5
3316	D5
3317	E5
3319	D6
3320	D6
3321	C6
3322	C7
3323	C7
3324	C7
3325	D7
3326	D7
3327	D2
3328	F3
3329	F3
4312	D3
4313	E4
4318	E6
4327	C7
4328	C7
4329	C7
4330	C7
4331	C8
4332	E7
4333	E7
4334	E7
4335	E7
4336	E7
4337	C9
4338	C9
4339	C2
4340	C5
5304	E2
5309	B5
5321	C6
5324	B7
5339	C9
5340	E9
6310	B5
6311	C5
6323	D7
6324	C7
6328	F2
6329	F2
6330	C1
6331	C1
7316	E5
7320	D6
7325	D7
F300	E9
F301	B1
F302	C1
F303	C1
F305	B4
F306	B4
F307	E2
F308	C3
F309	D1
F310	F9
F311	D1
F313	F2
F314	F2
F315	F2
F316	E9
F318	E9
F319	E9
I304	C3
I313	E4
I317	E5
I318	E5
I319	D6
I320	D6
I321	C6
I322	D7
I324	C7
I325	D7

SSB: Histogram and Hercules

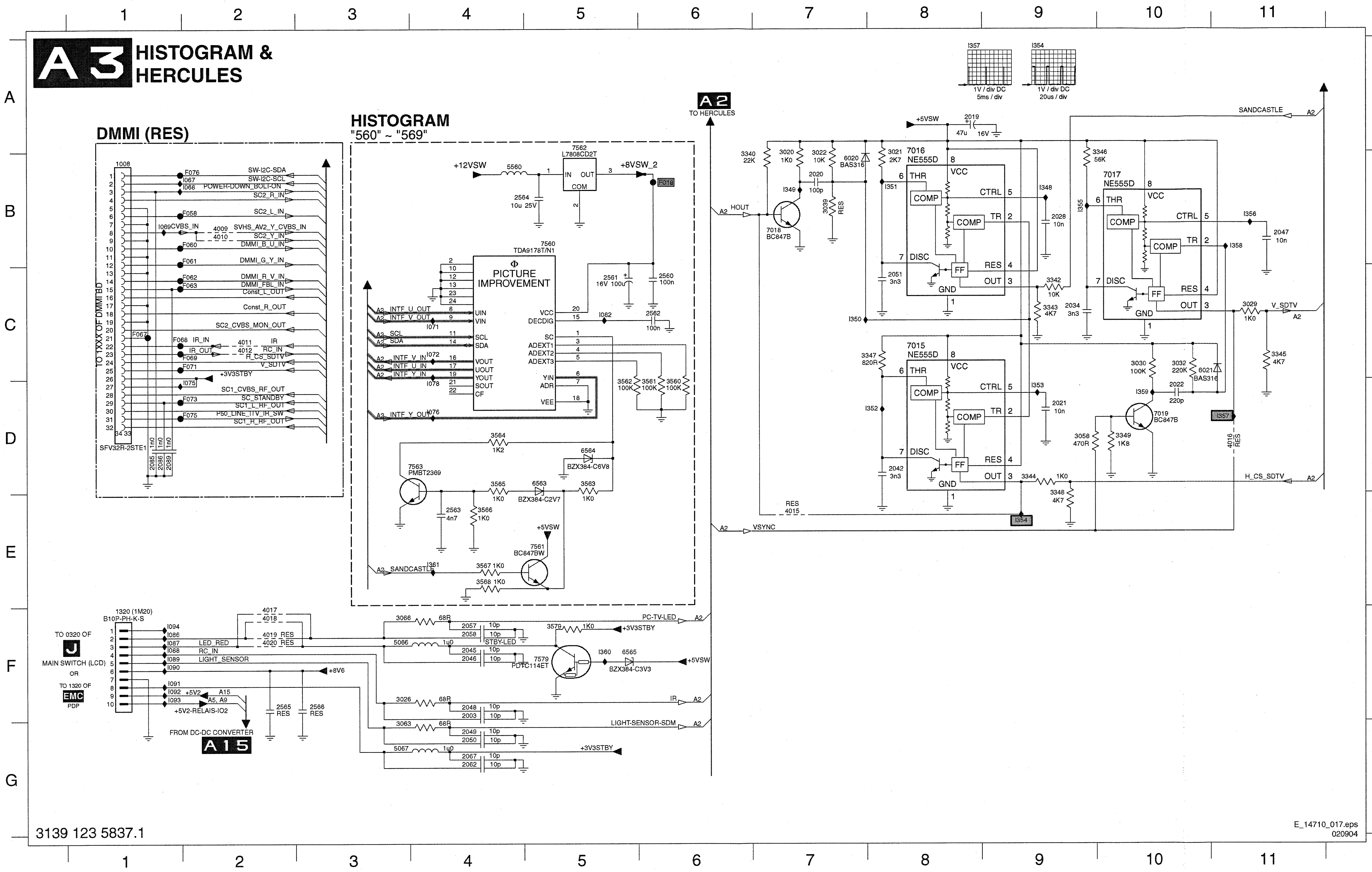


Item	No 3D	3D
4004	-	Yes
4005	Yes	-
4006	-	Yes
4007	Yes	-
4002	Yes	-
3009	Yes	-
2083	-	Yes

*	HETV (15W)	MTV (5W)
3380	5K6	10K
3381	5K6	10K
3382	5K6	10K
3383	5K6	10K

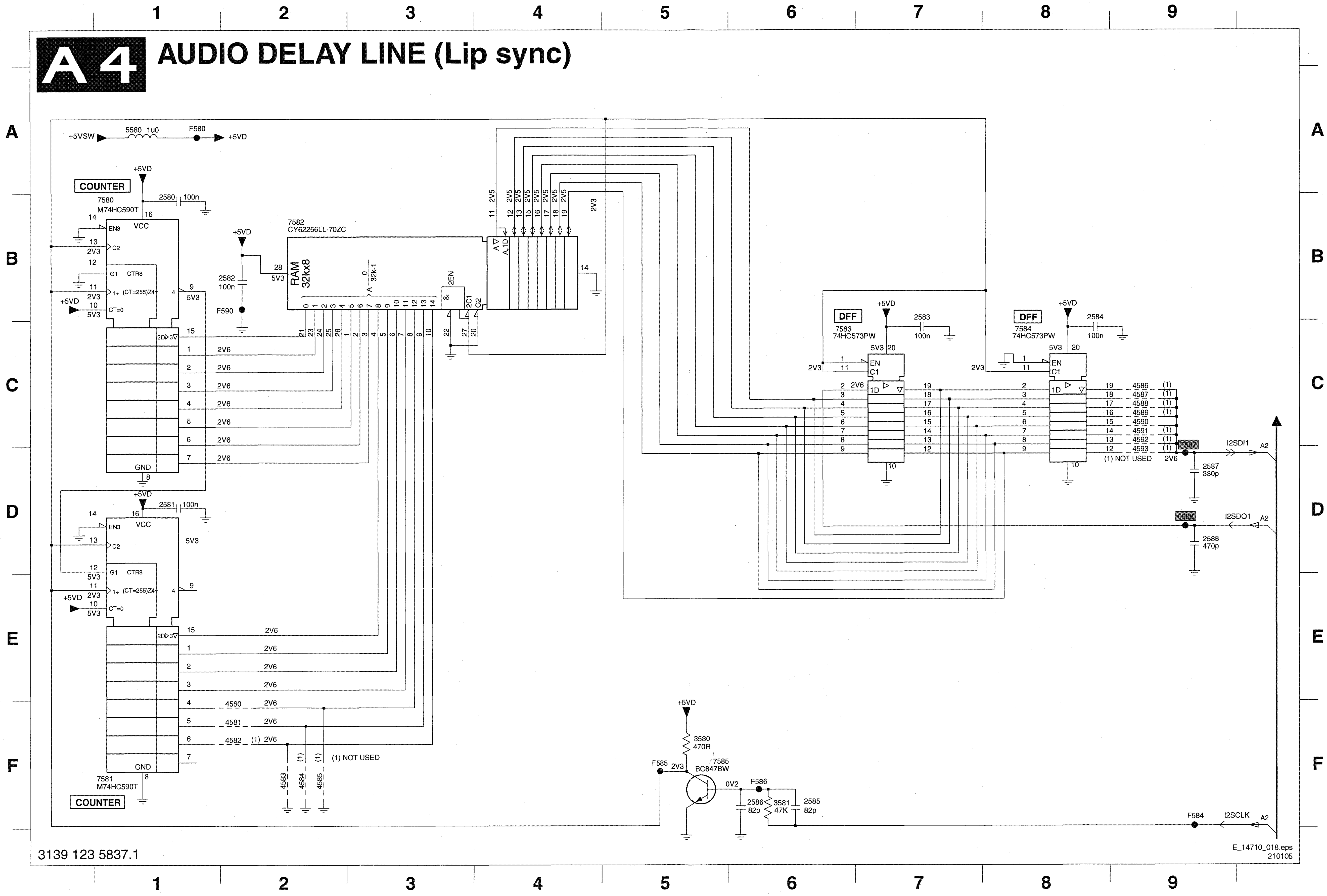
1001	D4
1004	I12
1009	H4
1036	H1
1336	H1
1402	B1
2000	E2
2001	E3
2002	F10
2004	C6
2005	D5
2006	D4
2007	D4
2008	E4
2009	E4
2010	E4
2011	E5
2012	F3
2013	H7
2014	H8
2015	H8
2016	H8
2017	H8
2018	H8
2023	F10
2024	F2
2025	E10
2026	E10
2027	E10
2029	E10
2030	E10
2031	E10
2032	E10
2033	E11
2035	D11
2036	H3
2037	I3
2040	C14
2041	D10
2043	E4
2044	D10
2052	D10
2053	J11
2054	C3
2055	F12
2056	F12
2059	G2
2060	E4
2061	E4
2063	F5
2064	E2
2065	G4
2066	H5
2068	D5
2069	G2
2070	B3
2071	D5
2072	B5
2073	B6
2074	C6
2076	C9
2077	C10
2078	B11
2079	H2
2080	H2
2081	H2
2082	F6
2083	G7
2084	D9
2087	H2
2088	I2
2090	I2
2091	I2
2092	I2
2093	J2
2094	J2
2095	K2
2096	K2
2097	J2
2098	J2
2099	A11
2355	G7
2356	G6
2357	G6
2358	G6
2359	F5
2360	I14
2361	J16
2363	J14
2364	J16
2365	J16
2366	J16
2367	I14
2368	K14
2370	G5
2371	G5
2372	G5
2373	G6
2374	G6
2375	G6
2376	G12
2377	H12
2378	D9
2380	D10
2381	D10
2382	D5
2386	H11
2387	G5
2388	G5
2392	G11
2394	C10
2395	H6
2396	H6
2397	G9
2398	G9
3000	D2
3001	E3
3002	E2
3003	E2
3004	E1
3005	D2
3006	D5
3007	E4
3008	F4
3009	G8
3010	F5
3011	E11
3012	H16
3013	I8
3014	D14
3015	C15
3016	D15
3017	C15
3018	D15
3019	B14
3023	I2
3024	J2
3025	J2
3027	J2
3028	F9
3031	H16
3033	H16
3034	I16
3035	E10
3036	I16
3037	I2
3038	H2
3040	F12
3048	D11
3049	C11
3050	C11
3051	C11
3052	C14
3053	F5
3054	E10
3055	I16
3056	B1
3057	B9
3059	E4
3060	F5
3064	J11
3065	F5
3067	G2
3068	H2
3069	H2
3070	B2
3071	J11
3072	I2
3073	C4
3074	H5
3075	B4
3077	B4
3078	B4
3079	B5
3080	A6
3081	B6
3082	B7
3083	B7
3084	C7
3085	B7
3086	B8
3087	B8
3088	B8
3089	D2
3091	C10
3092	B10
3093	B11
3094	C9
3096	B8
3097	A12
3098	F13
3357	C4
3358	H7
3359	G7
3360	H16
3361	H16
3362	H16
3363	I16
3364	I16
3365	I16
3366	I14
3367	I14
3368	J14
3369	J14
3370	F6
3371	G4
3372	G4
3373	J14
3374	H6
3378	H12
3380	G10
3381	G11
3382	H10
3383	H11
3386	G12
3389	C9
3390	H8
3391	H8
3392	H9
3393	H9
3394	C5
3415	B3
4002	G7
4004	H9
4005	H9
4006	H9
4007	H9
4008	C10
4022	B7
4023	H2
4062	E5
4085	H3
4086	I3
4360	J13
4361	J13
4362	J13
4363	J13
5001	C6
5002	C6
5003	E3
5004	H7
5005	F10
5006	D11
5007	C10
5008	C10
5010	F12
5060	C5
5070	A5
5071	C6
5072	B9
5360	I14
5370	C9
5371	C9
5372	C10
6001	C3
6005	H7
6073	C2
6074	C2
6075	C2
6076	C2
7001	F2
7002-1	F2
7002-2	F1
7003	E1
7004	F13
7005	C1
7011	E7
7012	B14
7013	B15
7014	C15
7070	C2
7075	B2
7099	B12
7360	I15
7370-1	J4
7370-2	J5
7371-1	J5
7371-2	J6
7372-1	J6
7372-2	J7
7376-A	H10
7376-B	H11
7377-A	G10
7377-B	G11
F002	E6
F003	D6
F004	D5
F005	F9
F006	B5
F007	B5
F008	C5
F009	C3
F010	E5
F011	F3
F012	F3
F013	H6
F014	H7
F019	D9
F020	D10
F021	C10
F022	A12
F023	B8
F024	J2
F025	K2
F026	J2
F027	I2
F028	J4
F029	J4
F030	I4
F031	I4
F032	I4
F033	B6
F034	I4
F035	I4
F036	I4
F037	J4
F038	K4
F039	J4
F040	K4
F041	B6
F042	K4
F043	I4
F044	K4
F045	K4
F046	G4
F047	G4
F048	J2
F049	H4
F050	K4
F051	G4
F052	B1
F053	G4
F072	G2
F077	H2
F078	H2
F079	I2
F080	I2
F081	J2
F082	J2
F083	J2
F087	E5
F088	E6
F089	E6
F090	I12
F093	I12
F094	J12
F095	J12
F096	J12
F099	B13
F420	B2
F421	B2
F422	B14
F423	B14
F424	F15
I001	A6
I002	E5
I003	D1
I005	B5
I006	C2
I007	C3
I008	E9
I009	D6
I010	D6
I011	D6
I012	F6
I013	D9
I015	C7
I016	B11
I018	E5
I019	E5
I020	E6
I022	E6
I023	D10
I024	D10
I025	G6
I026	G6
I028	G7
I030	C7
I032	F7
I033	F7
I034	F8
I036	D10
I037	F8
I039	B10
I042	C11
I044	D11
I051	E11
I052	I15
I054	E10
I055	I16
I056	I14
I057	F10
I058	I16
I059	I12
I060	J12
I061	E10
I063	H6
I064	C10
I065	C9
I073	G10
I074	H10
I079	H13
I080	H13
I081	I13
I371	F7
I386	J16
I387	J16
I388	F5

SSB: Histogram and Hercules


A3 HISTOGRAM & HERCULES
DMMI (RES)
HISTOGRAM
"560" ~ "569"
A2 TO HERCULES
1008
SFV32R-2STE1
TO 1XXX OF DMMI BD
SW-I2C-SDA
SW-I2C-SCL
POWER-DOWN_BOLT-ON
SC2_R_IN
SC2_L_IN
CVBS_IN
SVHS_AV2_Y_CVBS_IN
SC2_Y_IN
DMMI_B_U_IN
DMMI_G_Y_IN
DMMI_R_V_IN
DMMI_FBL_IN
Const_L_OUT
Const_R_OUT
SC2_CVBS_MON_OUT
IR_IN
IR
IR_OUT
RC_IN
R_CS_SDTV
V_SDTV
+3V3STBY
SC1_CVBS_RF_OUT
SC_STANDBY
SC1_L_RF_OUT
P50_LINE_ITV_IR_SW
SC1_R_RF_OUT
7562
L7808CD2T
+12VSW
+8VSW_2
7560
TDA9178T/N1
PICTURE IMPROVEMENT
INTF_U_OUT
INTF_V_OUT
SCL
SDA
INTF_V_IN
INTF_U_IN
INTF_Y_IN
INTF_Y_OUT
SANDCASTLE
7563
PMBT2369
7561
BC847BW
BZX384-C6V8
BZX384-C2V7
+5VSW
1320 (1M20)
B10P-PH-K-S
TO 0320 OF
J
MAIN SWITCH (LCD)
OR
TO 1320 OF
EMC
PDP
LED_RED
RC_IN
LIGHT_SENSOR
+8V6
+5V2
A15
A5, A9
+5V2-RELAIS-IO2
FROM DC-DC CONVERTER
A15
PC-TV-LED
STBY-LED
7579
PDTC114ET
BZX384-C3V3
IR
LIGHT-SENSOR-SDM
+3V3STBY
I357
I354
1V / div DC
5ms / div
1V / div DC
20us / div
+5VSW
SANDCASTLE
HOUT
7018
BC847B
BAS316
7016
NE555D
7015
NE555D
7017
NE555D
THR
VCC
COMP
CTRL
TR
DISC
FF
RES
OUT
GND
7019
BC847B
V_SDTV
H_CS_SDTV
VSYNC
RES
3139 123 5837.1
E_14710_017.eps
020904

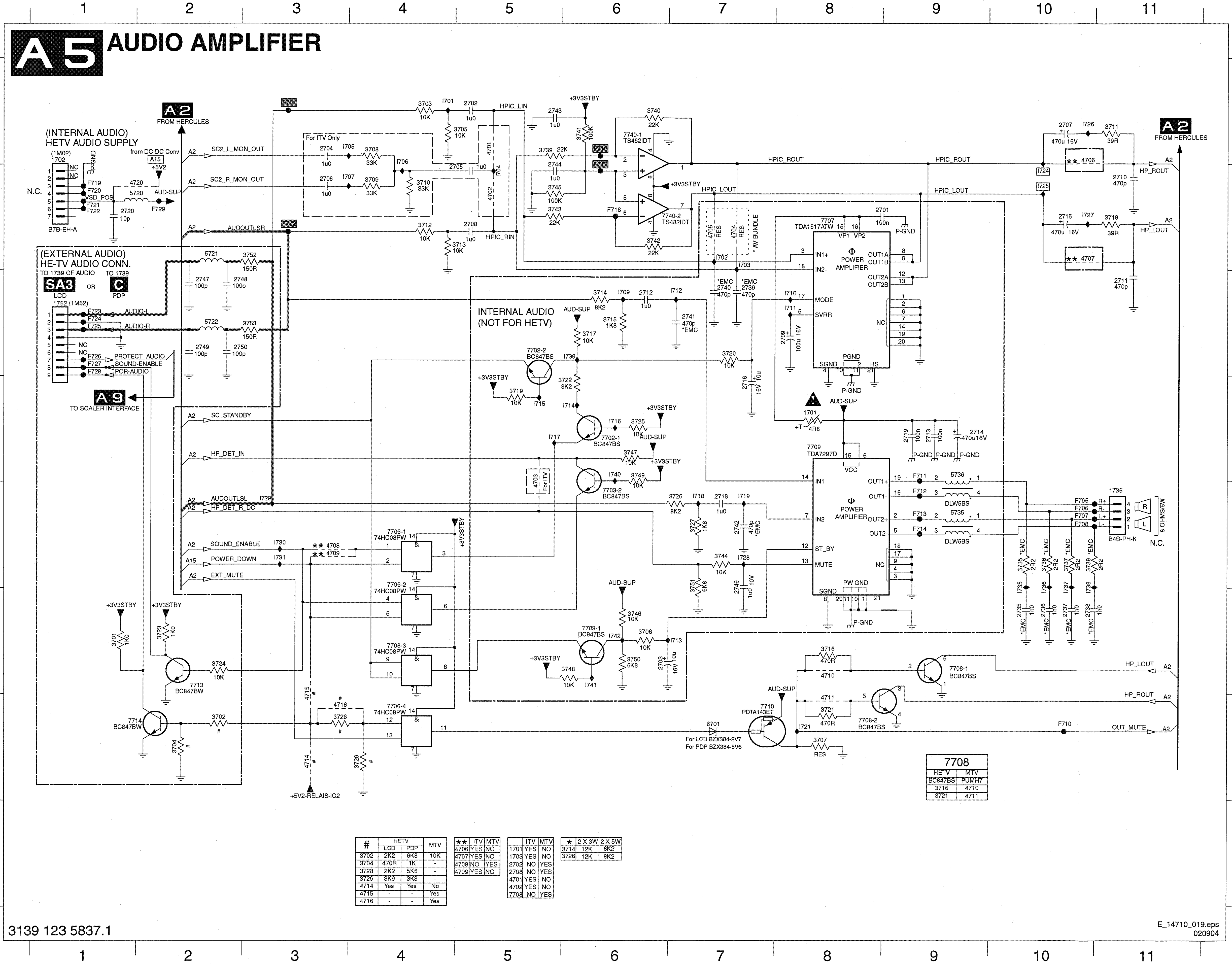
1008	B1
1320	F1
2003	F4
2019	A8
2020	B7
2021	D9
2022	D10
2028	B9
2034	C9
2042	D8
2045	F4
2046	F4
2047	B11
2048	F4
2049	G4
2050	G4
2051	C8
2057	F4
2058	F4
2062	G4
2067	G4
2085	D1
2086	D1
2089	D1
2560	C6
2561	C5
2562	C6
2563	E4
2564	B4
2565	F2
2566	F3
3020	A7
3021	A8
3022	A7
3026	F3
3029	C11
3030	C10
3032	C10
3039	B7
3058	D9
3063	G3
3066	F3
3340	A6
3342	C9
3343	C9
3344	D9
3345	C11
3346	A10
3347	C8
3348	D9
3349	D10
3560	C6
3561	C6
3562	C5
3563	D5
3564	D4
3565	D4
3566	E4
3567	E4
3568	E4
3579	F5
4009	B2
4010	B2
4011	C2
4012	C2
4015	E7
4016	D11
4017	F2
4018	F2
4019	F2
4020	F2
5066	F3
5067	G3
5560	B4
6020	B7
6021	C10
6563	D5
6564	D5
6565	F5
7015	C8
7016	B8
7017	B10
7018	B7
7019	D10
7560	B5
7561	E5
7562	A5
7563	D3
7579	F5
F018	B6
F058	B2
F060	B2
F061	B2
F062	C2
F063	C2
F067	C1
F068	C1
F069	C2
F071	C2
F073	D2
F075	D2
F076	B2
I067	B2
I068	B2
I069	B1
I071	C4
I072	C4
I075	D2
I076	D4
I078	D4
I082	C5
I086	F1
I087	F1
I088	F1
I089	F1
I090	F1
I091	F1
I092	F1
I093	F1
I094	F1
I348	B9
I349	B7
I350	C7
I351	B8
I352	D8
I353	D9
I354	E9
I355	B9
I356	B11
I357	D11
I358	B11
I359	D10
I360	F5
I361	E4

SSB: Audio Delay line (Lip sync)


A 4
AUDIO DELAY LINE (Lip sync)
+5VSW
5580 1u0
F580
+5VD
COUNTER
7580
M74HC590T
2580 100n
EN3
C2
G1
CTR8
1+ (CT=255)Z4
CT=0
VCC
GND
2D▷3▽
2V3
5V3
2V6
7582
CY62256LL-70ZC
RAM
32kx8
A
0
32k-1
2EN
&
2C1
G2
A▽
A,1D
2V5
2V3
2582
100n
F590
7581
M74HC590T
2581 100n
4580
4581
4582
4583
4584
4585
(1) NOT USED
DFF
7583
74HC573PW
2583 100n
EN
C1
1D
7584
74HC573PW
2584 100n
4586
4587
4588
4589
4590
4591
4592
4593
F587
2587
330p
I2SDI1
A2
F588
2588
470p
I2SDO1
F584
I2SCLK
F585
3580
470R
7585
BC847BW
0V2
F586
2586
82p
3581
47K
2585
82p
3139 123 5837.1
E_14710_018.eps
210105
1
2
3
4
5
6
7
8
9
A
B
C
D
E
F

2580	B1
2581	D1
2582	B2
2583	B7
2584	B8
2585	F6
2586	F6
2587	D9
2588	D9
3580	F5
3581	F6
4580	F2
4581	F2
4582	F2
4583	F2
4584	F2
4585	F2
4586	C9
4587	C9
4588	C9
4589	C9
4590	C9
4591	C9
4592	C9
4593	D9
5580	A1
7580	B1
7581	F1
7582	B2
7583	C6
7584	C8
7585	F6
F580	A1
F584	F9
F585	F5
F586	F6
F587	D9
F588	D9
F590	B2

SSB: Audio Amplifier


A5 AUDIO AMPLIFIER
A2 FROM HERCULES
(INTERNAL AUDIO)
HETV AUDIO SUPPLY
(1M02) 1702
B7B-EH-A
N.C.
from DC-DC Conv
A15
+5V2
AUD-SUP
F719
F720
VSD_POS
F721
F722
F729
5720
4720
2720 10p
SC2_L_MON_OUT
SC2_R_MON_OUT
AUDOUTLSR
For ITV Only
(EXTERNAL AUDIO)
HE-TV AUDIO CONN.
TO 1739 OF AUDIO
TO 1739
SA3
OR
C
LCD
PDP
1752 (1M52)
AUDIO-L
AUDIO-R
PROTECT_AUDIO
SOUND-ENABLE
POR-AUDIO
A9 TO SCALER INTERFACE
HPIC_LIN
HPIC_RIN
HPIC_ROUT
HPIC_LOUT
+3V3STBY
7740-1 TS482IDT
7740-2 TS482IDT
AV BUNDLE
RES
7707 TDA1517ATW
POWER AMPLIFIER
IN1+
IN2-
OUT1A
OUT1B
OUT2A
OUT2B
MODE
SVRR
NC
SGND
PGND
HS
P-GND
INTERNAL AUDIO (NOT FOR HETV)
7702-2 BC847BS
7702-1 BC847BS
7703-2 BC847BS
7703-1 BC847BS
SC_STANDBY
HP_DET_IN
AUDOUTLSL
HP_DET_R_DC
SOUND_ENABLE
POWER_DOWN
EXT_MUTE
7706-1 74HC08PW
7706-2 74HC08PW
7706-3 74HC08PW
7706-4 74HC08PW
7713 BC847BW
7714 BC847BW
+5V2-RELAIS-IO2
7709 TDA7297D
VCC
IN1
IN2
ST_BY
MUTE
OUT1+
OUT1-
OUT2+
OUT2-
PW GND
DLW5BS
1735
B4B-PH-K
8 OHMS/6W
N.C.
HP_ROUT
HP_LOUT
A2 FROM HERCULES
7710 PDTA143ET
6701
For LCD BZX384-2V7
For PDP BZX384-5V6
7708-1 BC847BS
7708-2 BC847BS
OUT_MUTE
3139 123 5837.1
E_14710_019.eps
020904

7708	
HETV	MTV
BC847BS	PUMH7
3716	4710
3721	4711

<table>
<tr><th rowspan="2">#</th><th colspan="2">HETV</th><th rowspan="2">MTV</th></tr>
<tr><th>LCD</th><th>PDP</th></tr>
<tr><td>3702</td><td>2K2</td><td>6K8</td><td>10K</td></tr>
<tr><td>3704</td><td>470R</td><td>1K</td><td>-</td></tr>
<tr><td>3728</td><td>2K2</td><td>5K6</td><td>-</td></tr>
<tr><td>3729</td><td>3K9</td><td>3K3</td><td>-</td></tr>
<tr><td>4714</td><td>Yes</td><td>Yes</td><td>No</td></tr>
<tr><td>4715</td><td>-</td><td>-</td><td>Yes</td></tr>
<tr><td>4716</td><td>-</td><td>-</td><td>Yes</td></tr>
</table>

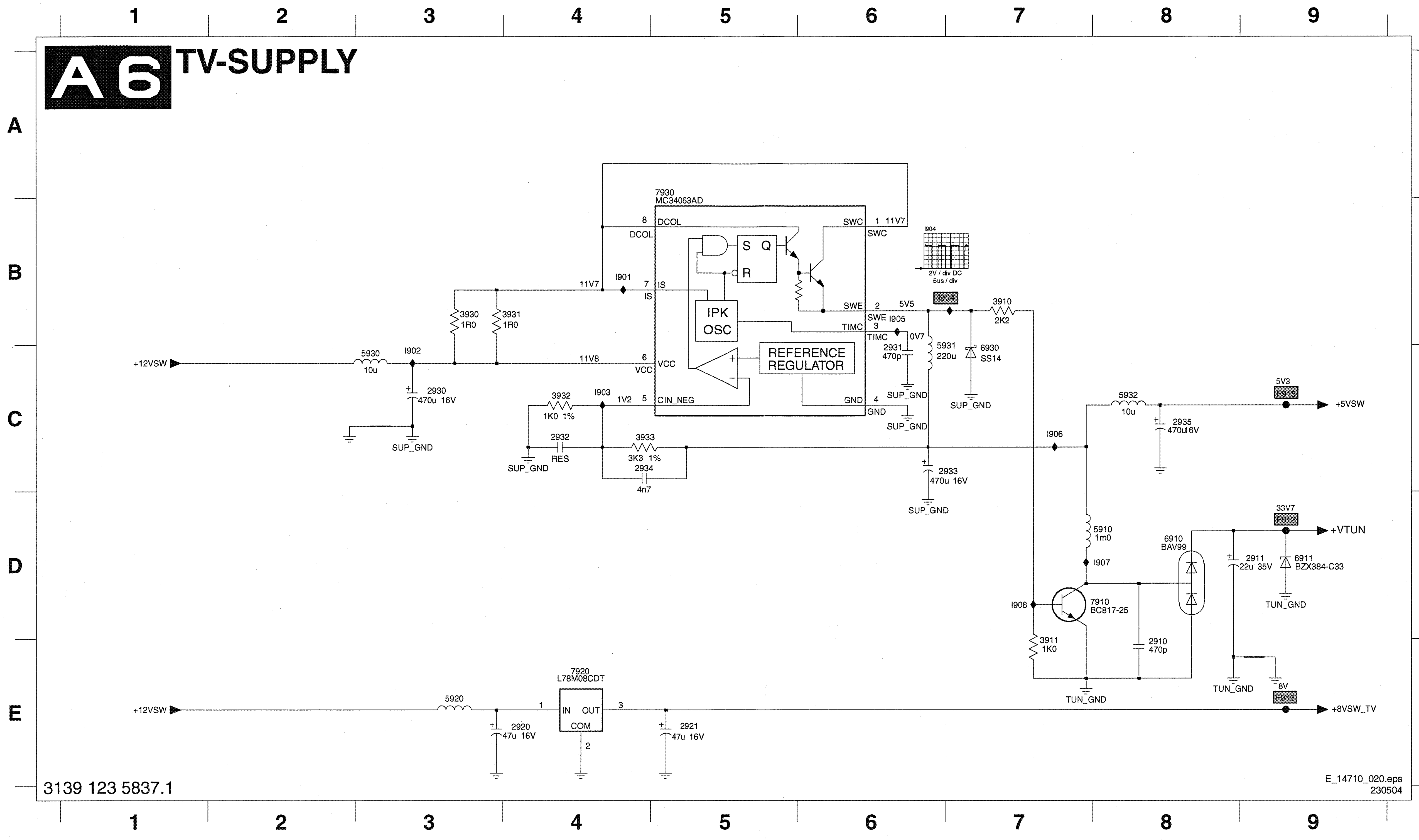
**	ITV	MTV
4706	YES	NO
4707	YES	NO
4708	NO	YES
4709	YES	NO

	ITV	MTV
1701	YES	NO
1703	YES	NO
2702	NO	YES
2708	NO	YES
4701	YES	NO
4702	YES	NO
7708	NO	YES

*	2 X 3W	2 X 5W
3714	12K	8K2
3726	12K	8K2

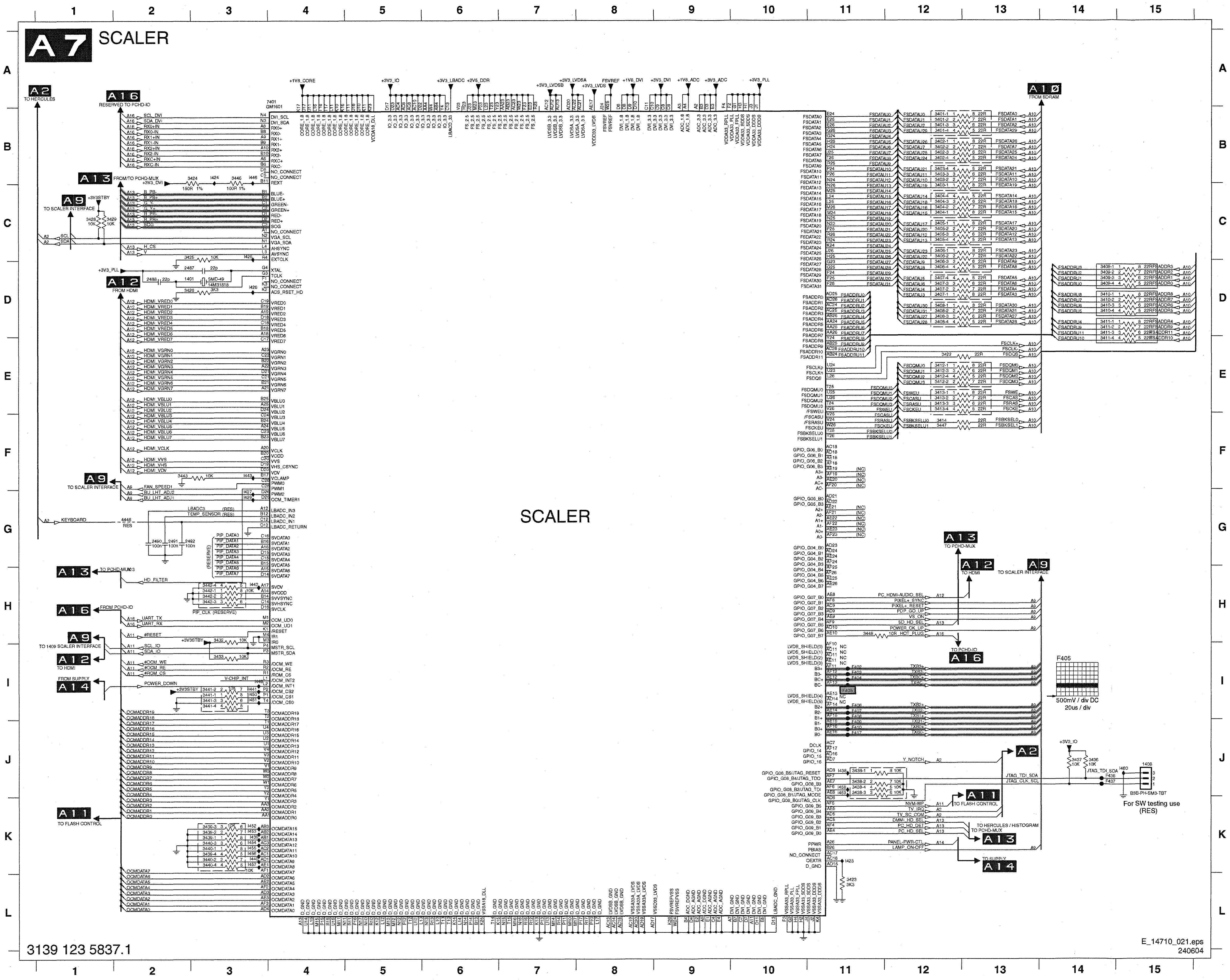
1701	D8
1702	A1
1735	E11
1752	C1
2701	B8
2702	A5
2703	F6
2704	A3
2705	B5
2706	B3
2707	A10
2708	B5
2709	C8
2710	B11
2711	C11
2712	C6
2713	D9
2714	D9
2715	B10
2716	D7
2718	E7
2719	D9
2720	B1
2735	F10
2736	F10
2737	F10
2738	F10
2739	C7
2740	C7
2741	C7
2742	E7
2743	A5
2744	B5
2746	E7
2747	C2
2748	C2
2749	C2
2750	C2
3701	F1
3702	G2
3703	A4
3704	G2
3705	A5
3706	F6
3707	G8
3708	A4
3709	B4
3710	B4
3711	A11
3712	B4
3713	B4
3714	C6
3715	C6
3716	F8
3717	C6
3718	B11
3719	D5
3720	C7
3721	G8
3722	D6
3723	F2
3724	F2
3725	D6
3726	E7
3727	E7
3728	G3
3729	G4
3735	E10
3736	E10
3737	E10
3738	E10
3739	A5
3740	A6
3741	A6
3742	B6
3743	B5
3744	E7
3745	B5
3746	F6
3747	D6
3748	F6
3749	D6
3750	F6
3751	F7
3752	B3
3753	C3
4701	A5
4702	B5
4703	D5
4704	B7
4705	B7
4706	A10
4707	B10
4708	E3
4709	E3
4710	F8
4711	G8
4714	G3
4715	F3
4716	G3
4720	B1
5720	B1
5721	B2
5722	C2
5735	E9
5736	D9
6701	G7
7702-1	D6
7702-2	C5
7703-1	F6
7703-2	E6
7706-1	E4
7706-2	E4
7706-3	F4
7706-4	G4
7707	B8
7708-1	F9
7708-2	G8
7709	D8
7710	G7
7713	F2
7714	G2
7740-1	A6
7740-2	B6
F701	A3
F702	B3
F705	E10
F706	E10
F707	E10
F708	E10
F710	G10
F711	D9
F712	E9
F713	E9
F714	E9
F716	A6
F717	B6
F718	B6
F719	B1
F720	B1
F721	B1
F722	B1
F723	C1
F724	C1
F725	C1
F726	C1
F727	C1
F728	C1
F729	B2
I701	A4
I702	B7
I703	B7
I704	B5
I705	A3
I706	A4
I707	B3
I709	C6
I710	C8
I711	C8
I712	C7
I713	F7
I714	D6
I715	D5
I716	D6
I717	D5
I718	E7
I719	E7
I721	G8
I724	B10
I725	B10
I726	A10
I727	B10
I728	E7
I729	E3
I730	E3
I731	E3
I735	E10
I736	E10
I737	E10
I738	E10
I739	C6
I740	D6
I741	F6
I742	F6

SSB: TV Supply


A6 TV-SUPPLY
1 2 3 4 5 6 7 8 9
A B C D E
7930
MC34063AD
DCOL
SWC
IS
VCC
CIN_NEG
SWE
TIMC
GND
S Q R
IPK OSC
REFERENCE REGULATOR
11V7
I901
I902
I903
I904
I905
I906
I907
I908
11V8
1V2
5V5
0V7
+12VSW
5930 10u
2930 470u 16V
3930 1R0
3931 1R0
3932 1K0 1%
2932 RES
3933 3K3 1%
2934 4n7
2931 470p
5931 220u
6930 SS14
3910 2K2
2933 470u 16V
2V / div DC
5us / div
SUP_GND
5932 10u
2935 470u 16V
5V3 F915 +5VSW
5910 1m0
6910 BAV99
7910 BC817-25
3911 1K0
2910 470p
2911 22u 35V
6911 BZX384-C33
33V7 F912 +VTUN
TUN_GND
8V F913 +8VSW_TV
5920
7920 L78M08CDT
IN OUT COM
2920 47u 16V
2921 47u 16V
3139 123 5837.1
E_14710_020.eps
230504

2910	D8
2911	D9
2920	E4
2921	E5
2930	C3
2931	B6
2932	C4
2933	C7
2934	C4
2935	C8
3910	B7
3911	D7
3930	B3
3931	B4
3932	C4
3933	C4
5910	D8
5920	E3
5930	C3
5931	B7
5932	C8
6910	D8
6911	D9
6930	C7
7910	D7
7920	E4
7930	A5
F912	D9
F913	E9
F915	C9
I901	B4
I902	C3
I903	C4
I904	B7
I905	B6
I906	C7
I907	D8
I908	D7

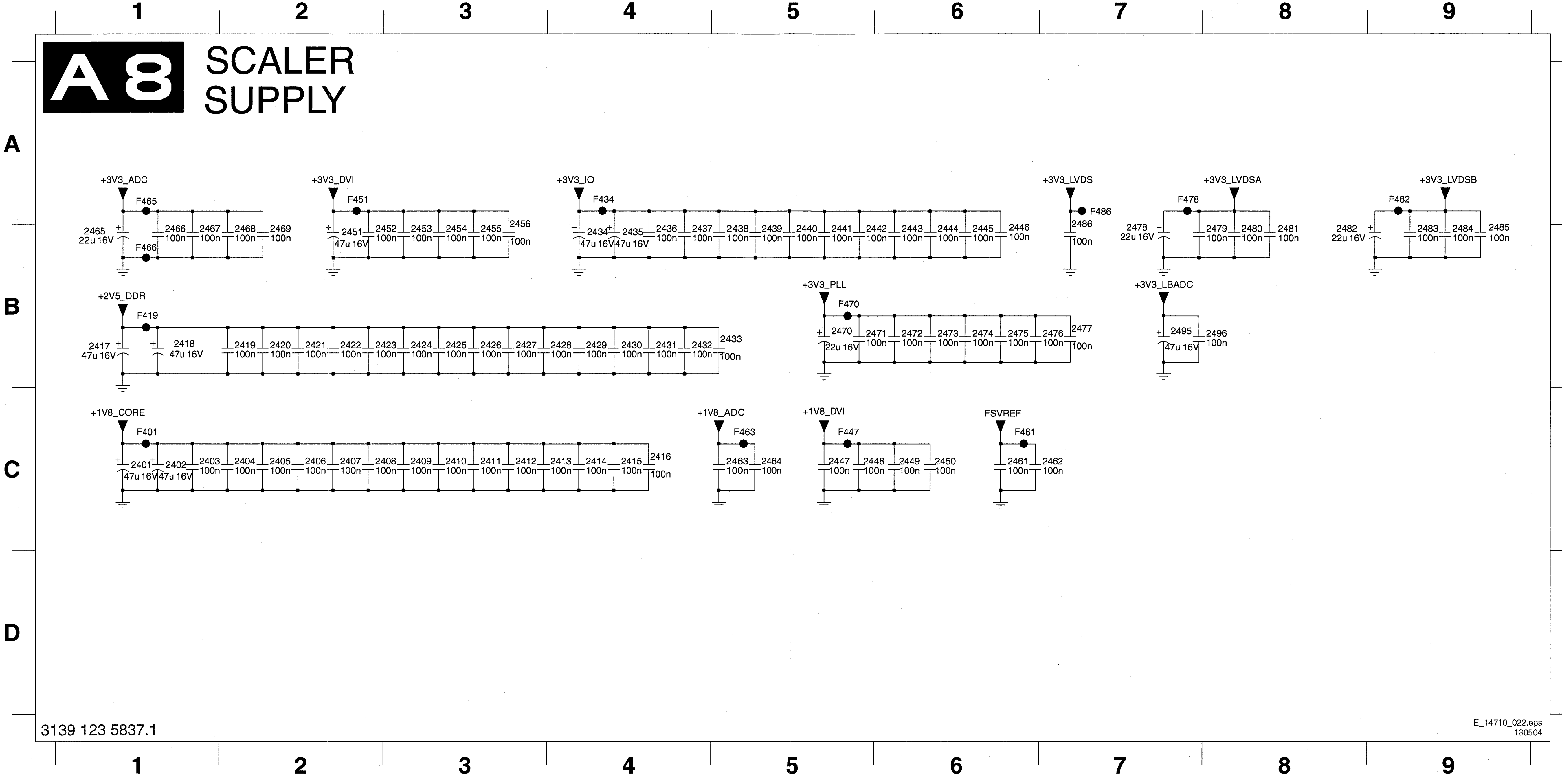
SSB: Scaler


A7 SCALER
SCALER
A2 TO HERCULES
A16 RESERVED TO PCHD-IO
A13 FROM/TO PCHD-MUX
A9 TO SCALER INTERFACE
A12 FROM HDMI
A16 FROM PCHD-IO
A12 TO HDMI
A14 FROM SUPPLY
A11 TO FLASH CONTROL
A10 FROM SDRAM
A13 TO PCHD-MUX
A16 TO PCHD-IO
A13 TO HERCULES / HISTOGRAM TO PCHD-MUX
A14 TO SUPPLY
7401 GM1601
F405
500mV / div DC
20us / div
For SW testing use (RES)
B3B-PH-SM3-TBT
3139 123 5837.1
E_14710_021.eps
240604

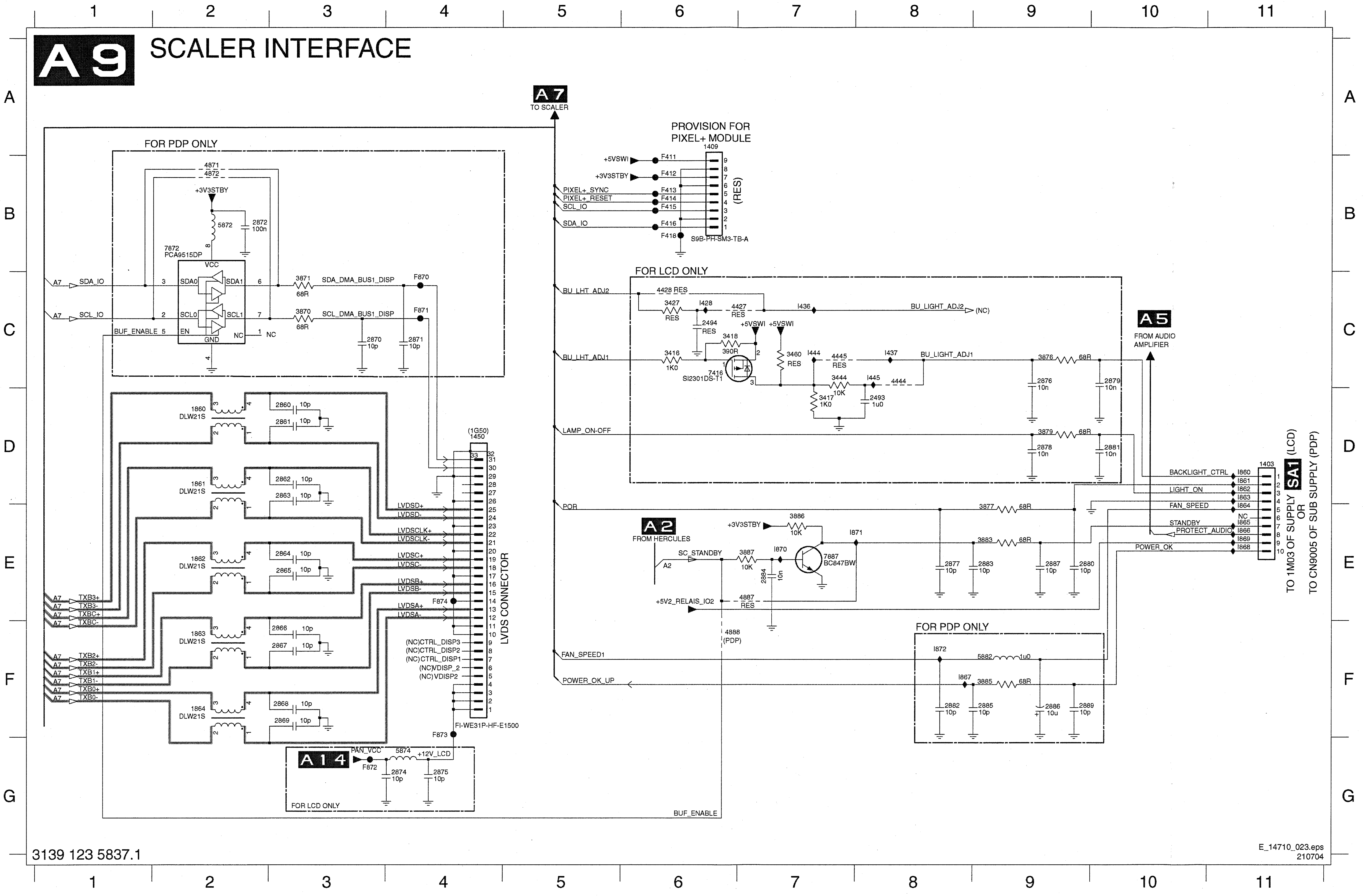
1401	D2
1408	J15
2487	D2
2488	D2
2490	G2
2491	G2
2492	G2
3401-1	B12
3401-2	B12
3401-3	B12
3401-4	B12
3402-1	B12
3402-2	B12
3402-3	B12
3402-4	B12
3403-1	C12
3403-2	B12
3403-3	B12
3403-4	B12
3404-1	C12
3404-2	C12
3404-3	C12
3404-4	C12
3405-1	C12
3405-2	C12
3405-3	C12
3405-4	C12
3406-1	C12
3406-2	C12
3406-3	D12
3406-4	D12
3407-1	D12
3407-2	D12
3407-3	D12
3407-4	D12
3408-1	D12
3408-2	D12
3408-3	D12
3408-4	D12
3409-1	D14
3409-2	D14
3409-3	D14
3409-4	D14
3410-1	D14
3410-2	D14
3410-3	D14
3410-4	D14
3411-1	D14
3411-2	D14
3411-3	D14
3411-4	E14
3412-1	E12
3412-2	E12
3412-3	E12
3412-4	E12
3413-1	E12
3413-2	E12
3413-3	E12
3413-4	E12
3414	F12
3422	E12
3423	L11
3424	B3
3425	C2
3426	D2
3428	C1
3429	C1
3432	H3
3433	I3
3436	J14
3437	J14
3438-1	J11
3438-2	J11
3438-3	J11
3438-4	J11
3439-1	K3
3439-2	K3
3439-3	K3
3439-4	K3
3440-1	K3
3440-2	K3
3440-3	K3
3440-4	K3
3441-1	I3
3441-2	I3
3441-3	I3
3441-4	I3
3442-1	H3
3442-2	H3
3442-3	H3
3442-4	H3
3443	F2
3446	B3
3447	F12
3448	H11
4446	G2
7401	A3
F402	I11
F403	I11
F404	I11
F405	I11
F406	I11
F407	I11
F408	I11
F409	J11
F410	J11
F417	J11
F436	J14
F437	J14
I423	K11
I424	B3
I425	C3
I426	D3
I427	G3
I429	G3
I438	J11
I439	K3
I440	K3
I441	I3
I442	H3
I443	F3
I446	B3
I449	I3
I450	I3
I451	I3
I452	K3
I453	K3
I454	K3
I455	K3
I456	K3
I457	K3
I458	J11
I459	J11
I460	J15

SSB: Scaler Supply

2401 C1
2402 C1
2403 C1
2404 C2
2405 C2
2406 C2
2407 C2
2408 C3
2409 C3
2410 C3
2411 C3
2412 C3
2413 C4
2414 C4
2415 C4
2416 C4
2417 B1
2418 B1
2419 B2
2420 B2
2421 B2
2422 B2
2423 B3
2424 B3
2425 B3
2426 B3
2427 B3
2428 B4
2429 B4
2430 B4
2431 B4
2432 B4
2433 B5
2434 B4
2435 B4
2436 B4
2437 B4
2438 B5
2439 B5
2440 B5
2441 B5
2442 B6
2443 B6
2444 B6
2445 B6
2446 A6
2447 C5
2448 C5
2449 C6
2450 C6
2451 B2
2452 B3
2453 B3
2454 B3
2455 B3
2456 A3
2461 C6
2462 C7
2463 C5
2464 C5
2465 B1
2466 B1
2467 B1
2468 B2
2469 B2
2470 B5
2471 B6
2472 B6
2473 B6
2474 B6
2475 B6
2476 B7
2477 B7
2478 A7
2479 B8
2480 B8
2481 B8
2482 B8
2483 B9
2484 B9
2485 A9
2486 A7
2495 B7
2496 B8
F401 C1
F419 B1
F434 A4
F447 C5
F451 A2
F461 C6
F463 C5
F465 A1
F466 B1
F470 B5
F478 A7
F482 A9
F486 A7

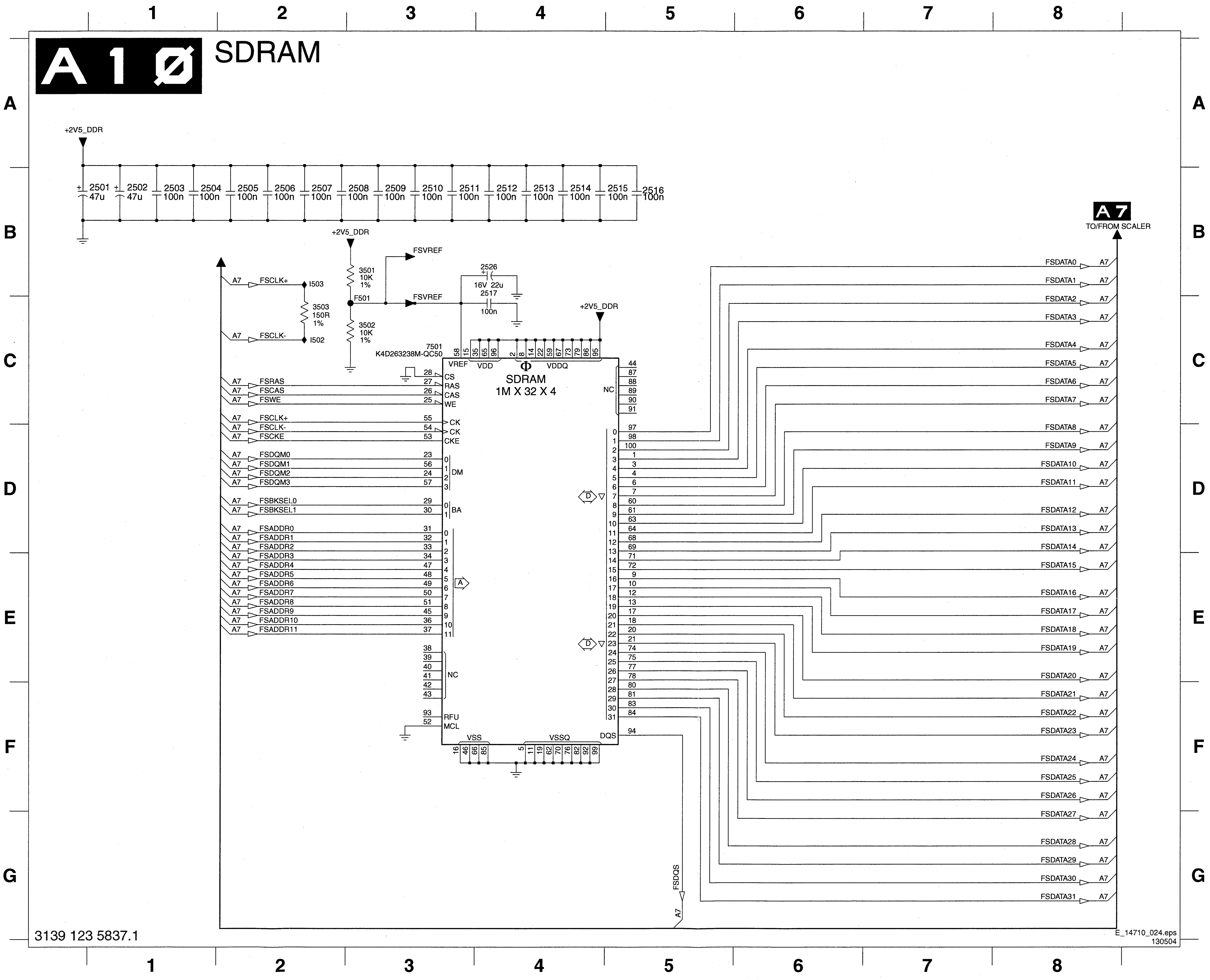

1 2 3 4 5 6 7 8 9
A B C D
A8
SCALER SUPPLY
+3V3_ADC
F465
2465 22u 16V
2466 100n
2467 100n
2468 100n
2469 100n
F466
+3V3_DVI
F451
2451 47u 16V
2452 100n
2453 100n
2454 100n
2455 100n
2456 100n
+3V3_IO
F434
2434 47u 16V
2435 47u 16V
2436 100n
2437 100n
2438 100n
2439 100n
2440 100n
2441 100n
2442 100n
2443 100n
2444 100n
2445 100n
2446 100n
+3V3_LVDS
F486
2486 100n
+3V3_LVDSA
F478
2478 22u 16V
2479 100n
2480 100n
2481 100n
+3V3_LVDSB
F482
2482 22u 16V
2483 100n
2484 100n
2485 100n
+2V5_DDR
F419
2417 47u 16V
2418 47u 16V
2419 100n
2420 100n
2421 100n
2422 100n
2423 100n
2424 100n
2425 100n
2426 100n
2427 100n
2428 100n
2429 100n
2430 100n
2431 100n
2432 100n
2433 100n
+3V3_PLL
F470
2470 22u 16V
2471 100n
2472 100n
2473 100n
2474 100n
2475 100n
2476 100n
2477 100n
+3V3_LBADC
2495 47u 16V
2496 100n
+1V8_CORE
F401
2401 47u 16V
2402 47u 16V
2403 100n
2404 100n
2405 100n
2406 100n
2407 100n
2408 100n
2409 100n
2410 100n
2411 100n
2412 100n
2413 100n
2414 100n
2415 100n
2416 100n
+1V8_ADC
F463
2463 100n
2464 100n
+1V8_DVI
F447
2447 100n
2448 100n
2449 100n
2450 100n
FSVREF
F461
2461 100n
2462 100n
3139 123 5837.1
E_14710_022.eps
130504

SSB: Scaler Interface


A9
SCALER INTERFACE
1 2 3 4 5 6 7 8 9 10 11
A B C D E F G
A7
TO SCALER
FOR PDP ONLY
4871
4872
+3V3STBY
5872
2872
100n
7872
PCA9515DP
VCC
SDA0
SDA1
SCL0
SCL1
EN
NC
GND
A7 SDA_IO
A7 SCL_IO
BUF_ENABLE
3871
68R
3870
68R
SDA_DMA_BUS1_DISP
SCL_DMA_BUS1_DISP
F870
F871
2870
10p
2871
10p
NC
PROVISION FOR
PIXEL+ MODULE
1409
+5VSWI
+3V3STBY
PIXEL+_SYNC
PIXEL+_RESET
SCL_IO
SDA_IO
F411
F412
F413
F414
F415
F416
F418
(RES)
S9B-PH-SM3-TB-A
FOR LCD ONLY
BU_LHT_ADJ2
BU_LHT_ADJ1
LAMP_ON-OFF
4428 RES
3427
RES
I428
4427
RES
2494
RES
I436
BU_LIGHT_ADJ2
(NC)
+5VSWI
+5VSWI
3418
390R
3416
1K0
7416
SI2301DS-T1
3460
RES
I444
4445
RES
I437
BU_LIGHT_ADJ1
3444
10K
I445
4444
3417
1K0
2493
1u0
3876
68R
2876
10n
2879
10n
3879
68R
2878
10n
2881
10n
A5
FROM AUDIO
AMPLIFIER
POR
3877
68R
A2
FROM HERCULES
+3V3STBY
3886
10K
I871
SC_STANDBY
A2
3887
10K
I870
2884
10n
7887
BC847BW
3883
68R
+5V2_RELAIS_IO2
4887
RES
4888
(PDP)
2877
10p
2883
10p
2887
10p
2880
10p
1403
BACKLIGHT_CTRL
LIGHT_ON
FAN_SPEED
NC
STANDBY
PROTECT_AUDIO
POWER_OK
I860
I861
I862
I863
I864
I865
I866
I869
I868
SA1
TO 1M03 OF SUPPLY (LCD)
OR
TO CN9005 OF SUB SUPPLY (PDP)
FOR PDP ONLY
FAN_SPEED1
POWER_OK_UP
I872
5882
1u0
I867
3885
68R
2882
10p
2885
10p
2886
10u
2889
10p
1860
DLW21S
1861
DLW21S
1862
DLW21S
1863
DLW21S
1864
DLW21S
2860 10p
2861 10p
2862 10p
2863 10p
2864 10p
2865 10p
2866 10p
2867 10p
2868 10p
2869 10p
A7 TXB3+
A7 TXB3-
A7 TXBC+
A7 TXBC-
A7 TXB2+
A7 TXB2-
A7 TXB1+
A7 TXB1-
A7 TXB0+
A7 TXB0-
(1G50)
1450
LVDSD+
LVDSD-
LVDSCLK+
LVDSCLK-
LVDSC+
LVDSC-
LVDSB+
LVDSB-
F874
LVDSA+
LVDSA-
(NC)CTRL_DISP3
(NC)CTRL_DISP2
(NC)CTRL_DISP1
(NC)VDISP_2
(NC) VDISP2
LVDS CONNECTOR
FI-WE31P-HF-E1500
F873
A14
PAN_VCC
F872
5874
+12V_LCD
2874
10p
2875
10p
FOR LCD ONLY
BUF_ENABLE
3139 123 5837.1
E_14710_023.eps
210704

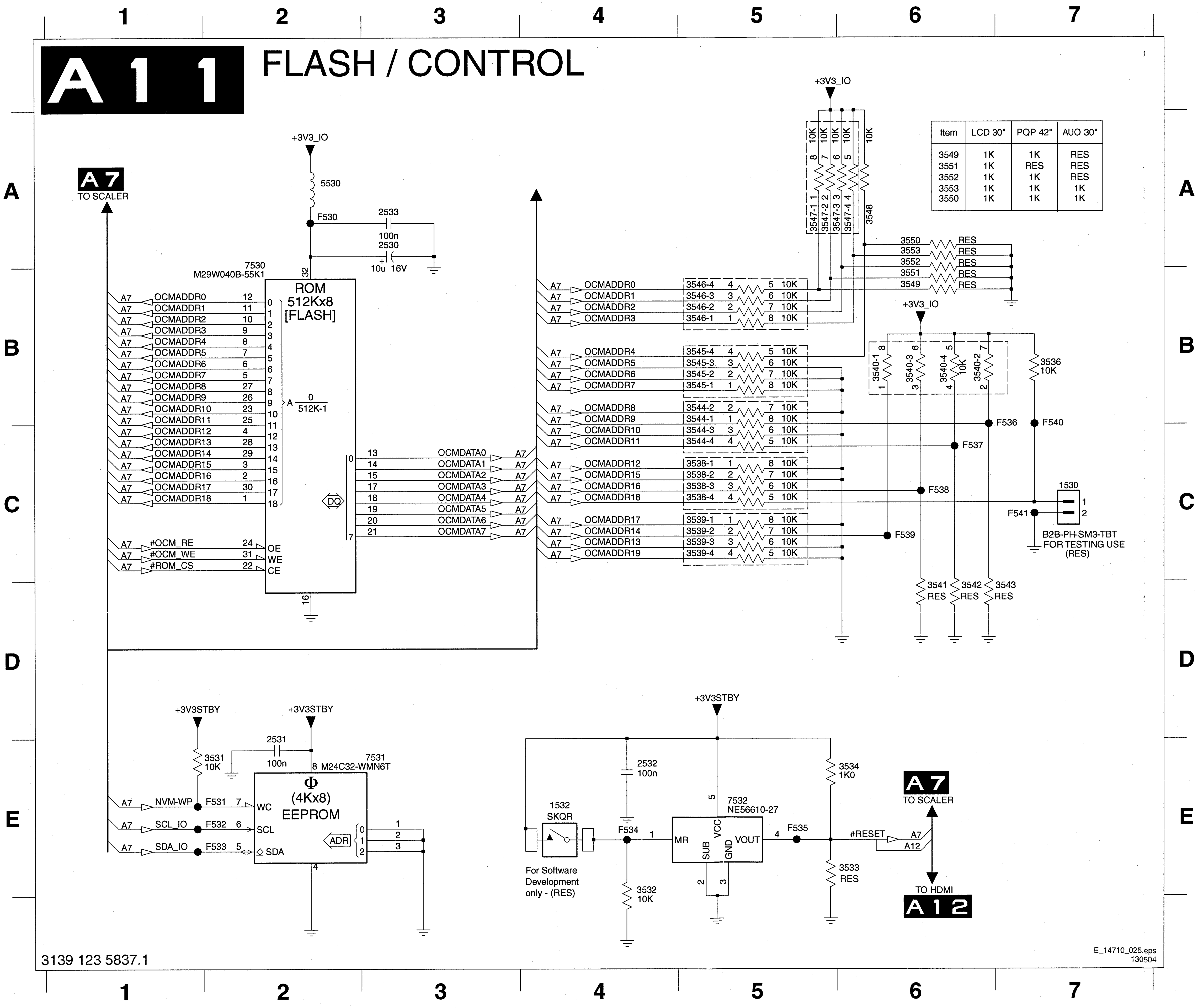
1403	D11
1409	A6
1450	D4
1860	D2
1861	D2
1862	E2
1863	F2
1864	F2
2493	D8
2494	C6
2860	D3
2861	D3
2862	D3
2863	D3
2864	E3
2865	E3
2866	F3
2867	F3
2868	F3
2869	F3
2870	C3
2871	C4
2872	B2
2874	G4
2875	G4
2876	C9
2877	E8
2878	D9
2879	C10
2880	E9
2881	D10
2882	F8
2883	E9
2884	E7
2885	F9
2886	F9
2887	E9
2889	F9
3416	C6
3417	D7
3418	C6
3427	C6
3444	C7
3460	C7
3870	C3
3871	C3
3876	C9
3877	E9
3879	D9
3883	E9
3885	F9
3886	E7
3887	E7
4427	C7
4428	C6
4444	C8
4445	C7
4871	B2
4872	B2
4887	E7
4888	F6
5872	B2
5874	G4
5882	F9
7416	C6
7872	B2
7887	E7
F411	B6
F412	B6
F413	B6
F414	B6
F415	B6
F416	B6
F418	B6
F870	C4
F871	C4
F872	G3
F873	F4
F874	E4
I428	C6
I436	C7
I437	C8
I444	C7
I445	C8
I860	D11
I861	D11
I862	D11
I863	D11
I864	E11
I865	E11
I866	E11
I867	F8
I868	E11
I869	E11
I870	E7
I871	E8
I872	F8

SSB: SDRAM


A10 SDRAM
+2V5_DDR
2501 47u
2502 47u
2503 100n
2504 100n
2505 100n
2506 100n
2507 100n
2508 100n
2509 100n
2510 100n
2511 100n
2512 100n
2513 100n
2514 100n
2515 100n
2516 100n
3501 10K 1%
3502 10K 1%
3503 150R 1%
F501
FSVREF
I502
I503
FSCLK+
FSCLK-
2526 16V 22u
2517 100n
7501 K4D263238M-QC50
SDRAM 1M X 32 X 4
VREF
VDD
VDDQ
VSS
VSSQ
CS
RAS
CAS
WE
CK
CKE
DM
BA
NC
RFU
MCL
DQS
FSRAS
FSCAS
FSWE
FSCKE
FSDQM0
FSDQM1
FSDQM2
FSDQM3
FSBKSEL0
FSBKSEL1
FSADDR0
FSADDR1
FSADDR2
FSADDR3
FSADDR4
FSADDR5
FSADDR6
FSADDR7
FSADDR8
FSADDR9
FSADDR10
FSADDR11
FSDQS
A7 TO/FROM SCALER
FSDATA0 … FSDATA31
A7
3139 123 5837.1
E_14710_024.eps 130504

2501	B1
2502	B1
2503	B1
2504	B1
2505	B2
2506	B2
2507	B2
2508	B3
2509	B3
2510	B3
2511	B3
2512	B4
2513	B4
2514	B4
2515	B5
2516	B5
2517	B4
2526	B4
3501	B3
3502	C3
3503	C2
7501	C3
F501	C3
I502	C2
I503	B2

SSB: Flash / Control



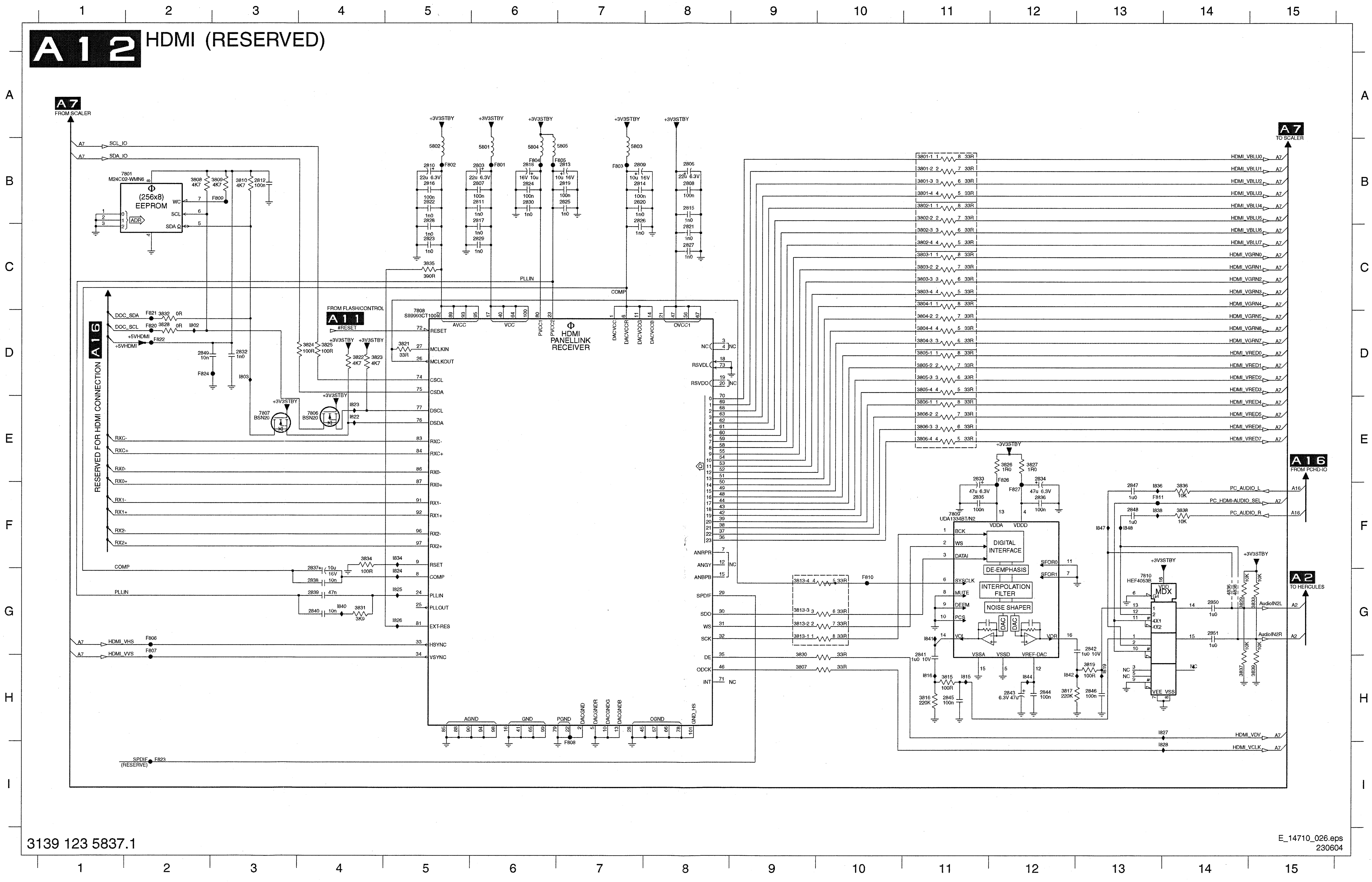
A11
FLASH / CONTROL
1 2 3 4 5 6 7
A B C D E
A7 TO SCALER
+3V3_IO
5530
F530
2533 100n
2530 10u 16V
7530 M29W040B-55K1
ROM 512Kx8 [FLASH]
A 0 512K-1
DQ
OCMADDR0 OCMADDR1 OCMADDR2 OCMADDR3 OCMADDR4 OCMADDR5 OCMADDR6 OCMADDR7 OCMADDR8 OCMADDR9 OCMADDR10 OCMADDR11 OCMADDR12 OCMADDR13 OCMADDR14 OCMADDR15 OCMADDR16 OCMADDR17 OCMADDR18 OCMADDR19
OCMDATA0 OCMDATA1 OCMDATA2 OCMDATA3 OCMDATA4 OCMDATA5 OCMDATA6 OCMDATA7
#OCM_RE OE
#OCM_WE WE
#ROM_CS CE
3546-1 3546-2 3546-3 3546-4 10K
3545-1 3545-2 3545-3 3545-4 10K
3544-1 3544-2 3544-3 3544-4 10K
3538-1 3538-2 3538-3 3538-4 10K
3539-1 3539-2 3539-3 3539-4 10K
3547-1 3547-2 3547-3 3547-4 10K
3548 10K
3550 RES 3553 RES 3552 RES 3551 RES 3549 RES
3540-1 3540-2 3540-3 3540-4 10K
3536 10K
F536 F537 F538 F539 F540 F541
1530 B2B-PH-SM3-TBT FOR TESTING USE (RES)
3541 RES 3542 RES 3543 RES
+3V3STBY
3531 10K
2531 100n
7531 M24C32-WMN6T
Φ (4Kx8) EEPROM
WC SCL SDA ADR
NVM-WP F531
SCL_IO F532
SDA_IO F533
2532 100n
1532 SKQR
For Software Development only - (RES)
F534
3532 10K
7532 NE56610-27
MR VCC VOUT SUB GND
F535
3534 1K0
3533 RES
#RESET A7 A12
A7 TO SCALER
TO HDMI A12
3139 123 5837.1
E_14710_025.eps 130504

Item	LCD 30"	PQP 42"	AUO 30"
3549	1K	1K	RES
3551	1K	RES	RES
3552	1K	1K	RES
3553	1K	1K	1K
3550	1K	1K	1K

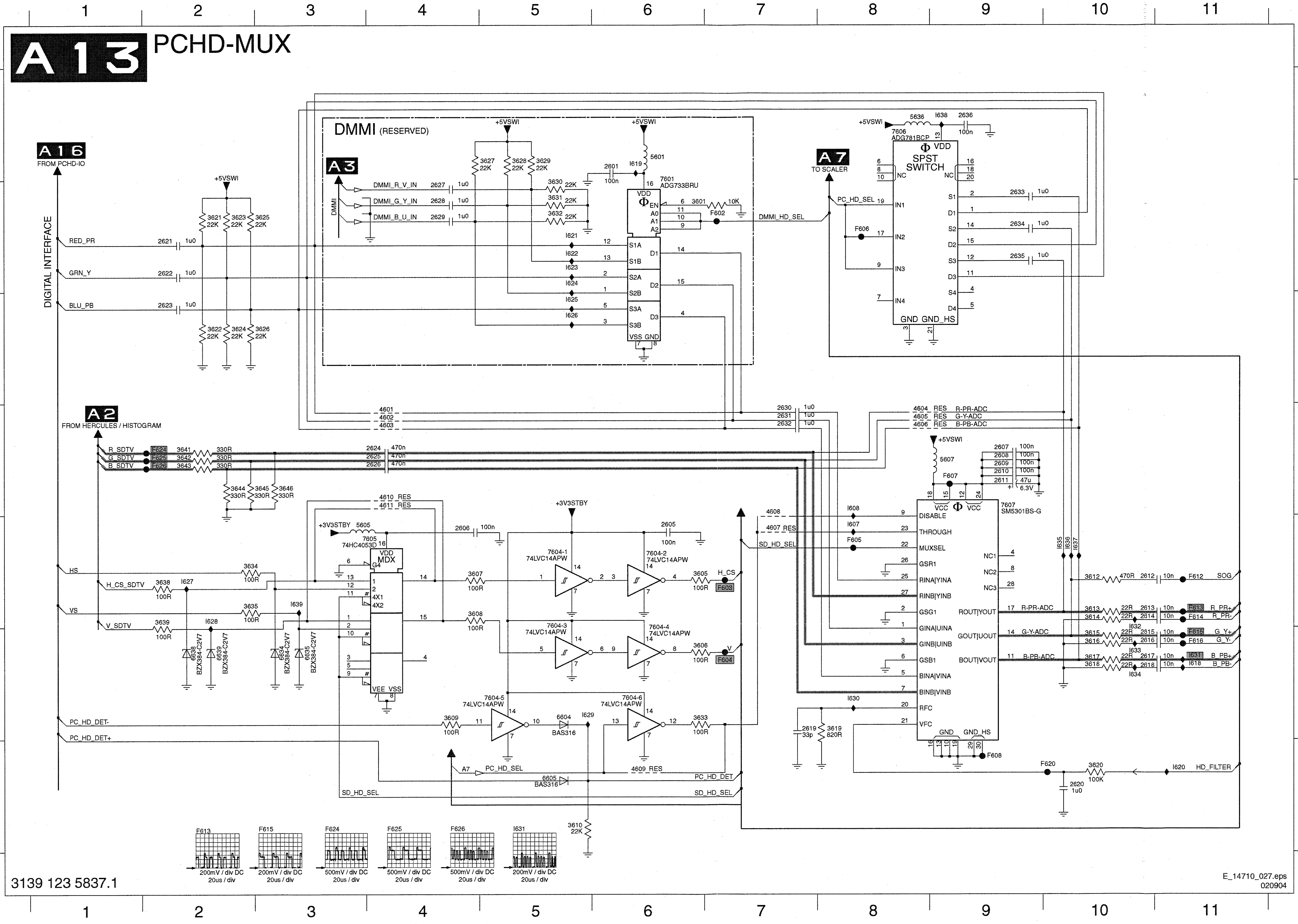
1530	C7
1532	E4
2530	A3
2531	E2
2532	E4
2533	A3
3531	E2
3532	E4
3533	E6
3534	E6
3536	B7
3538-1	C5
3538-2	C5
3538-3	C5
3538-4	C5
3539-1	C5
3539-2	C5
3539-3	C5
3539-4	C5
3540-1	B6
3540-2	B6
3540-3	B6
3540-4	B6
3541	D6
3542	D6
3543	D7
3544-1	B5
3544-2	B5
3544-3	C5
3544-4	C5
3545-1	B5
3545-2	B5
3545-3	B5
3545-4	B5
3546-1	B5
3546-2	B5
3546-3	B5
3546-4	B5
3547-1	A5
3547-2	A5
3547-3	A6
3547-4	A6
3548	A6
3549	B6
3550	A6
3551	B6
3552	A6
3553	A6
5530	A2
7530	A2
7531	E3
7532	E5
F530	A2
F531	E2
F532	E2
F533	E2
F534	E4
F535	E5
F536	C7
F537	C6
F538	C6
F539	C6
F540	C7
F541	C7

SSB: HDMI

2803	B6
2806	B8
2807	B6
2808	B8
2809	B7
2810	B5
2811	B6
2812	B3
2813	B7
2814	B7
2815	B8
2816	B5
2817	B6
2818	B6
2819	B7
2820	B7
2821	C8
2822	B5
2823	C5
2824	B6
2825	B7
2826	B7
2827	C8
2828	B5
2829	C6
2830	B6
2832	D3
2833	E11
2834	E12
2835	F11
2836	F12
2837	G4
2838	G4
2839	G4
2840	G4
2841	G11
2842	G13
2843	H12
2844	H12
2845	H11
2846	H13
2847	F13
2848	F13
2849	D2
2850	G14
2851	G14
3801-1	B11
3801-2	B11
3801-3	B11
3801-4	B11
3802-1	B11
3802-2	B11
3802-3	C11
3802-4	C11
3803-1	C11
3803-2	C11
3803-3	C11
3803-4	C11
3804-1	C11
3804-2	D11
3804-3	D11
3804-4	D11
3805-1	D11
3805-2	D11
3805-3	D11
3805-4	D11
3806-1	E11
3806-2	E11
3806-3	E11
3806-4	E11
3807	H9
3808	B2
3809	B3
3810	B3
3813-1	G9
3813-2	G9
3813-3	G9
3813-4	G9
3815	H11
3816	H11
3817	H12
3819	H13
3821	D5
3822	D4
3823	D4
3824	D4
3825	D4
3826	E12
3827	E12
3828	D2
3829	G14
3830	H9
3831	G4
3832	D2
3833	G15
3834	F4
3835	C5
3836	F14
3837	H14
3838	F14
3839	H15
4836	G14
4838	G14
5801	B6
5802	B5
5803	B7
5804	B6
5805	B7
7801	B2
7806	E4
7807	E3
7808	D5
7809	F11
7810	G13
F801	B6
F802	B5
F803	B7
F804	B6
F805	B7
F806	G2
F807	G2
F808	I7
F809	B3
F810	G10
F811	F13
F820	D2
F821	D2
F822	D2
F823	I2
F824	D2
F826	E12
F827	F12
I802	D2
I803	D3
I815	H11
I816	H11
I819	H13
I822	E4
I823	E4
I824	G5
I825	G5
I826	G5
I827	H14
I828	I14
I834	F5
I836	F13
I838	F13
I840	G4
I841	G11
I842	H12
I844	H12
I847	F13
I848	F13

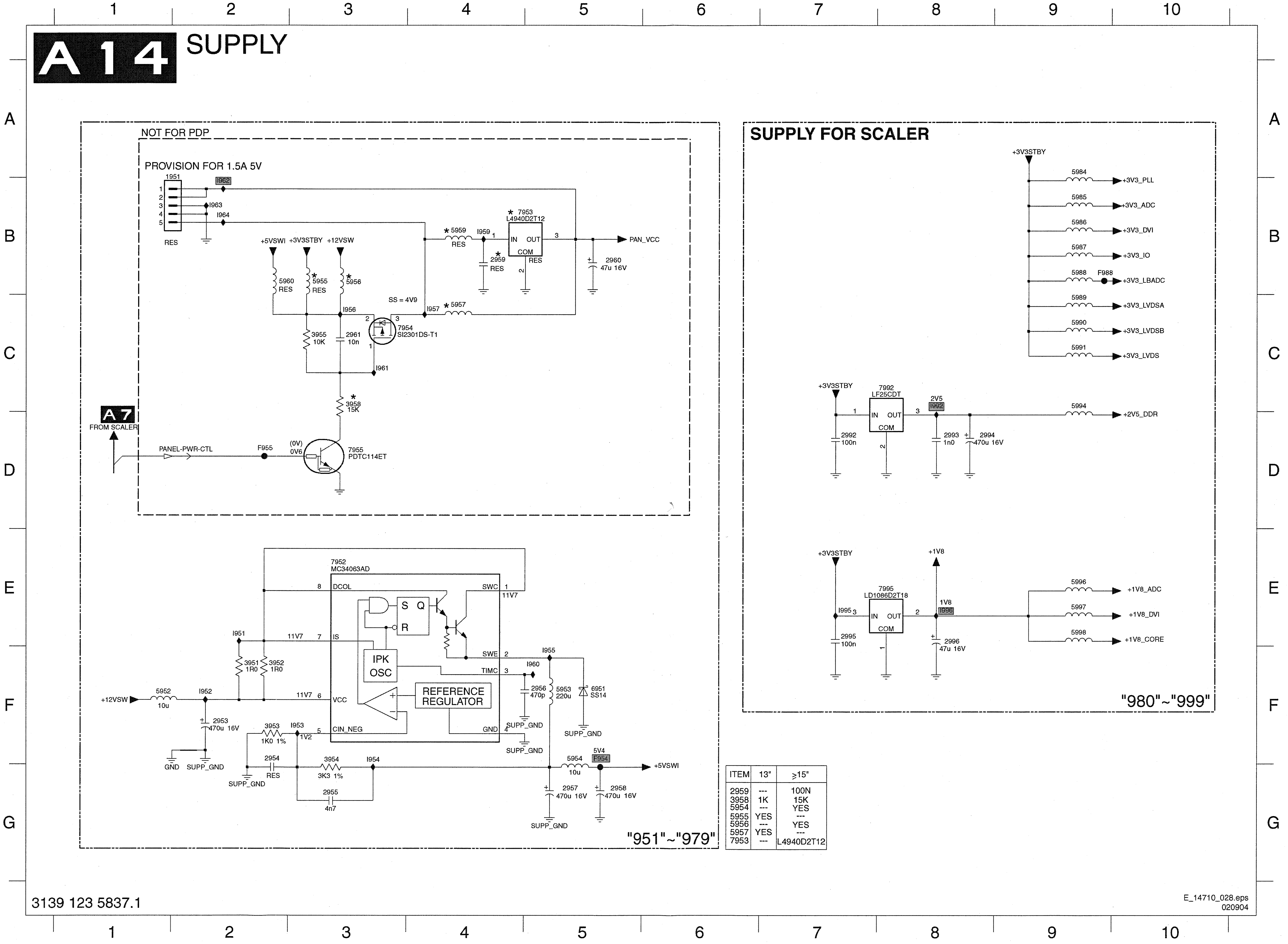

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
A12 HDMI (RESERVED)
A7 FROM SCALER
SCL_IO
SDA_IO
7801 M24C02-WMN6
(256x8) EEPROM
WC
SCL
SDA
ADR
+3V3STBY
PLLIN
COMP
A16
RESERVED FOR HDMI CONNECTION
DDC_SDA
DDC_SCL
+5VHDMI
FROM FLASH/CONTROL
A11
#RESET
7808 SII9993CT100
HDMI PANELLINK RECEIVER
RESET
MCLKIN
MCLKOUT
CSCL
CSDA
DSCL
DSDA
RXC-
RXC+
RX0-
RX0+
RX1-
RX1+
RX2-
RX2+
RSET
COMP
PLLIN
PLLOUT
EXT-RES
HSYNC
VSYNC
AVCC
VCC
PVCC1
PVCC2
DACVCC
OVCC1
AGND
GND
PGND
OGND
GND_HS
NC
RSVDL
RSVDO
ANRPR
ANGY
ANBPB
SPDIF
SDO
WS
SCK
DE
ODCK
INT
7807 BSN20
7806 BSN20
HDMI_VHS
HDMI_VVS
SPDIF (RESERVE)
A7 TO SCALER
HDMI_VBLU0 … HDMI_VBLU7
HDMI_VGRN0 … HDMI_VGRN7
HDMI_VRED0 … HDMI_VRED7
A16 FROM PCHD-IO
PC_AUDIO_L
PC_HDMI-AUDIO_SEL
PC_AUDIO_R
7809 UDA1334BT/N2
BCK
WS
DATAI
SYSCLK
MUTE
DEEM
PCS
VOL
DIGITAL INTERFACE
DE-EMPHASIS
INTERPOLATION FILTER
NOISE SHAPER
DAC
VDDA
VDDD
VSSA
VSSD
VREF-DAC
VOR
SFOR0
SFOR1
7810 HEF4053B
MDX
VEE VSS
A2 TO HERCULES
AudioIN2L
AudioIN2R
HDMI_VDV
HDMI_VCLK
3139 123 5837.1
E_14710_026.eps 230604

SSB: PCHD MUX


A13 PCHD-MUX
A16 FROM PCHD-IO
DIGITAL INTERFACE
RED_PR
GRN_Y
BLU_PB
A3 DMMI
DMMI (RESERVED)
DMMI_R_V_IN
DMMI_G_Y_IN
DMMI_B_U_IN
+5VSWI
7601 ADG733BRU
DMMI_HD_SEL
A7 TO SCALER
PC_HD_SEL
7606 ADG781BCP
SPST SWITCH
VDD
A2 FROM HERCULES / HISTOGRAM
R_SDTV
G_SDTV
B_SDTV
HS
H_CS_SDTV
VS
V_SDTV
+3V3STBY
7605 74HC4053D
MDX
7604-1 74LVC14APW
7604-2 74LVC14APW
7604-3 74LVC14APW
7604-4 74LVC14APW
7604-5 74LVC14APW
7604-6 74LVC14APW
H_CS
V
PC_HD_DET-
PC_HD_DET+
PC_HD_DET
SD_HD_SEL
BAS316
BZX384-C2V7
7607 SM5301BS-G
DISABLE
THROUGH
MUXSEL
GSR1
RINA|YINA
RINB|YINB
GSG1
GINA|UINA
GINB|UINB
GSB1
BINA|VINA
BINB|VINB
RFC
VFC
ROUT|YOUT
GOUT|UOUT
BOUT|VOUT
R-PR-ADC
G-Y-ADC
B-PB-ADC
SOG
R_PR+
R_PR-
G_Y+
G_Y-
B_PB+
B_PB-
HD_FILTER
F613 200mV / div DC 20us / div
F615 200mV / div DC 20us / div
F624 500mV / div DC 20us / div
F625 500mV / div DC 20us / div
F626 500mV / div DC 20us / div
I631 200mV / div DC 20us / div
3139 123 5837.1
E_14710_027.eps 020904

2601	A6
2605	E6
2606	E4
2607	D9
2608	D9
2609	D9
2610	D9
2611	D9
2612	E10
2613	E10
2614	E10
2615	F10
2616	F10
2617	F10
2618	F10
2619	F7
2620	G10
2621	B2
2622	B2
2623	C2
2624	D4
2625	D4
2626	D4
2627	B4
2628	B4
2629	B4
2630	D7
2631	D7
2632	D7
2633	B9
2634	B9
2635	B9
2636	A9
3601	B6
3605	E6
3606	F6
3607	E4
3608	E4
3609	F4
3610	G5
3612	E10
3613	E10
3614	E10
3615	F10
3616	F10
3617	F10
3618	F10
3619	F8
3620	G10
3621	B2
3622	C2
3623	B2
3624	C2
3625	B3
3626	C3
3627	A5
3628	A5
3629	A5
3630	A5
3631	B5
3632	B5
3633	F6
3634	E2
3635	E2
3638	E2
3639	E2
3641	D2
3642	D2
3643	D2
3644	D2
3645	D3
3646	D3
4601	D4
4602	D4
4603	D4
4604	D8
4605	D8
4606	D8
4607	E7
4608	D7
4609	G6
4610	D4
4611	D4
5601	A6
5605	E3
5607	D9
5636	A8
6604	F5
6605	G5
6634	F3
6635	F3
6638	F2
6639	F2
7601	B6
7604-1	E5
7604-2	E6
7604-3	F5
7604-4	F6
7604-5	F5
7604-6	F6
7605	E4
7606	A8
7607	D9
F602	B7
F603	E7
F604	F7
F605	E8
F606	B8
F607	D9
F608	G9
F612	E11
F613	E11
F614	E11
F615	F11
F616	F11
F620	G10
F624	D2
F625	D2
F626	D2
I607	E8
I608	D8
I618	F11
I619	A6
I620	G11
I621	B5
I622	B5
I623	B5
I624	B5
I625	C5
I626	C5
I627	E2
I628	E2
I629	F5
I630	F8
I631	F11
I632	E10
I633	F10
I634	F10
I635	E10
I636	E10
I637	E10
I638	A9
I639	E3

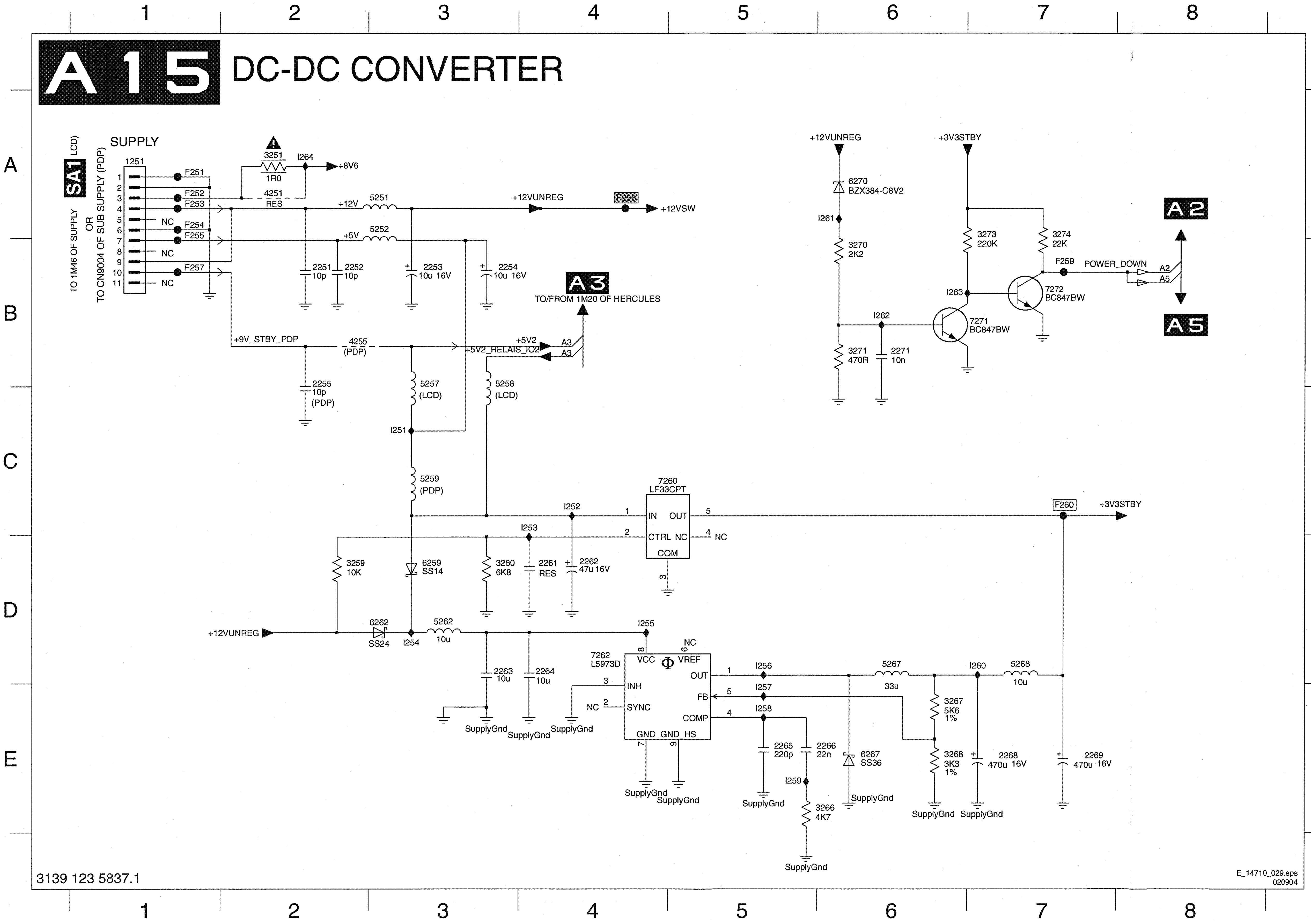
SSB: Supply


A14
SUPPLY
NOT FOR PDP
PROVISION FOR 1.5A 5V
1951
I962
I963
I964
RES
+5VSWI
+3V3STBY
+12VSW
5960 RES
5955 RES
5956
I956
3955 10K
2961 10n
SS = 4V9
I957
5957
7954 SI2301DS-T1
I961
3958 15K
A7
FROM SCALER
PANEL-PWR-CTL
F955
(0V) 0V6
7955 PDTC114ET
5959 RES
I959
2959 RES
7953 L4940D2T12
IN OUT COM
RES
2960 47u 16V
PAN_VCC
7952 MC34063AD
DCOL
SWC
11V7
IS
SWE
TIMC
VCC
CIN_NEG
GND
S Q R
IPK OSC
REFERENCE REGULATOR
I951
3951 1R0
3952 1R0
+12VSW
5952 10u
I952
2953 470u 16V
GND
SUPP_GND
3953 1K0 1%
I953 1V2
2954 RES
3954 3K3 1%
I954
2955 4n7
I955
I960
2956 470p
5953 220u
6951 SS14
5954 10u
5V4 F954
+5VSWI
2957 470u 16V
2958 470u 16V
"951"~"979"
SUPPLY FOR SCALER
+3V3STBY
5984 +3V3_PLL
5985 +3V3_ADC
5986 +3V3_DVI
5987 +3V3_IO
5988 F988 +3V3_LBADC
5989 +3V3_LVDSA
5990 +3V3_LVDSB
5991 +3V3_LVDS
7992 LF25CDT
2V5 I992
2992 100n
2993 1n0
2994 470u 16V
5994 +2V5_DDR
+1V8
7995 LD1086D2T18
I995
1V8 I996
2995 100n
2996 47u 16V
5996 +1V8_ADC
5997 +1V8_DVI
5998 +1V8_CORE
"980"~"999"
3139 123 5837.1
E_14710_028.eps 020904

ITEM	13"	≥15"
2959	---	100N
3958	1K	15K
5954	---	YES
5955	YES	---
5956	---	YES
5957	YES	---
7953	---	L4940D2T12

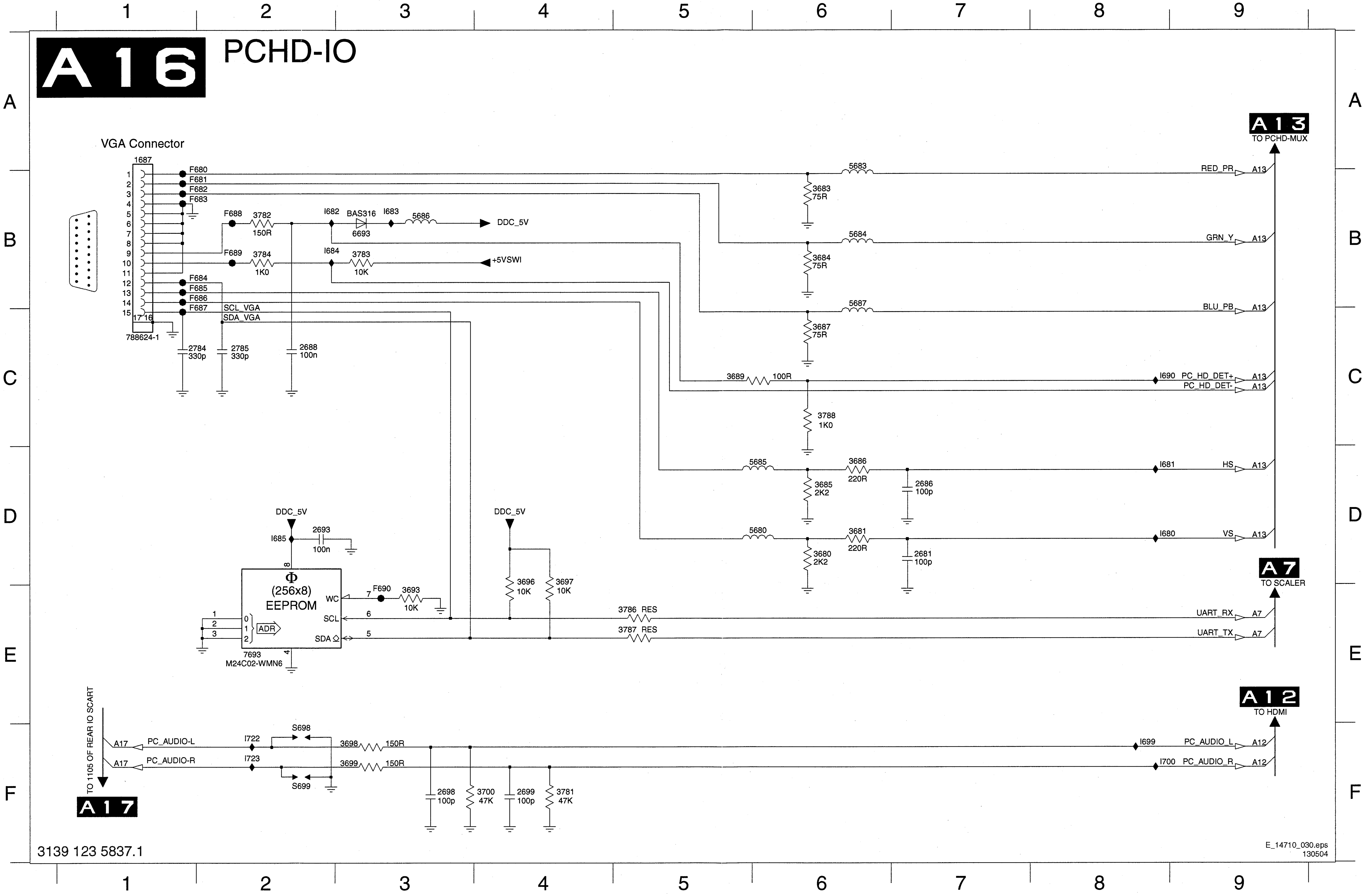
1951	B2
2953	F2
2954	F2
2955	G3
2956	F5
2957	G5
2958	G5
2959	B4
2960	B5
2961	C3
2992	D7
2993	D8
2994	D8
2995	E7
2996	E8
3951	F2
3952	F2
3953	F2
3954	F3
3955	C3
3958	C3
5952	F1
5953	F5
5954	F5
5955	B3
5956	B3
5957	C4
5959	B4
5960	B2
5984	A9
5985	B9
5986	B9
5987	B9
5988	B9
5989	C9
5990	C9
5991	C9
5994	C9
5996	E9
5997	E9
5998	E9
6951	F5
7952	E3
7953	B5
7954	C4
7955	D3
7992	C8
7995	E8
F954	F5
F955	D2
F988	B9
I951	E2
I952	F2
I953	F3
I954	F3
I955	F5
I956	C3
I957	C4
I959	B4
I960	F5
I961	C3
I962	B2
I963	B2
I964	B2
I992	C8
I995	E7
I996	E8

SSB: DC-DC Converter


A15 DC-DC CONVERTER
SUPPLY
SA1 (LCD)
TO 1M46 OF SUPPLY OR TO CN9004 OF SUB SUPPLY (PDP)
1251
F251
F252
F253
F254
F255
F257
NC
3251
1R0
I264
+8V6
4251
RES
+12V
5251
+12VUNREG
F258
+12VSW
+5V
5252
2251
10p
2252
10p
2253
10u 16V
2254
10u 16V
A3
TO/FROM 1M20 OF HERCULES
+9V_STBY_PDP
4255
(PDP)
+5V2
+5V2_RELAIS_IO2
2255
10p
(PDP)
5257
(LCD)
5258
(LCD)
I251
5259
(PDP)
7260
LF33CPT
IN
OUT
CTRL
NC
COM
I252
I253
+3V3STBY
F260
3259
10K
6259
SS14
3260
6K8
2261
RES
2262
47u 16V
+12VUNREG
6262
SS24
I254
5262
10u
I255
2263
10u
2264
10u
SupplyGnd
7262
L5973D
VCC
VREF
OUT
INH
FB
SYNC
COMP
GND
GND_HS
I256
I257
I258
I259
5267
33u
I260
5268
10u
3267
5K6
1%
3268
3K3
1%
2265
220p
2266
22n
3266
4K7
6267
SS36
2268
470u 16V
2269
470u 16V
+12VUNREG
+3V3STBY
6270
BZX384-C8V2
I261
3270
2K2
3273
220K
3274
22K
F259
POWER_DOWN
A2
A5
I263
7272
BC847BW
I262
7271
BC847BW
3271
470R
2271
10n
3139 123 5837.1
E_14710_029.eps
020904

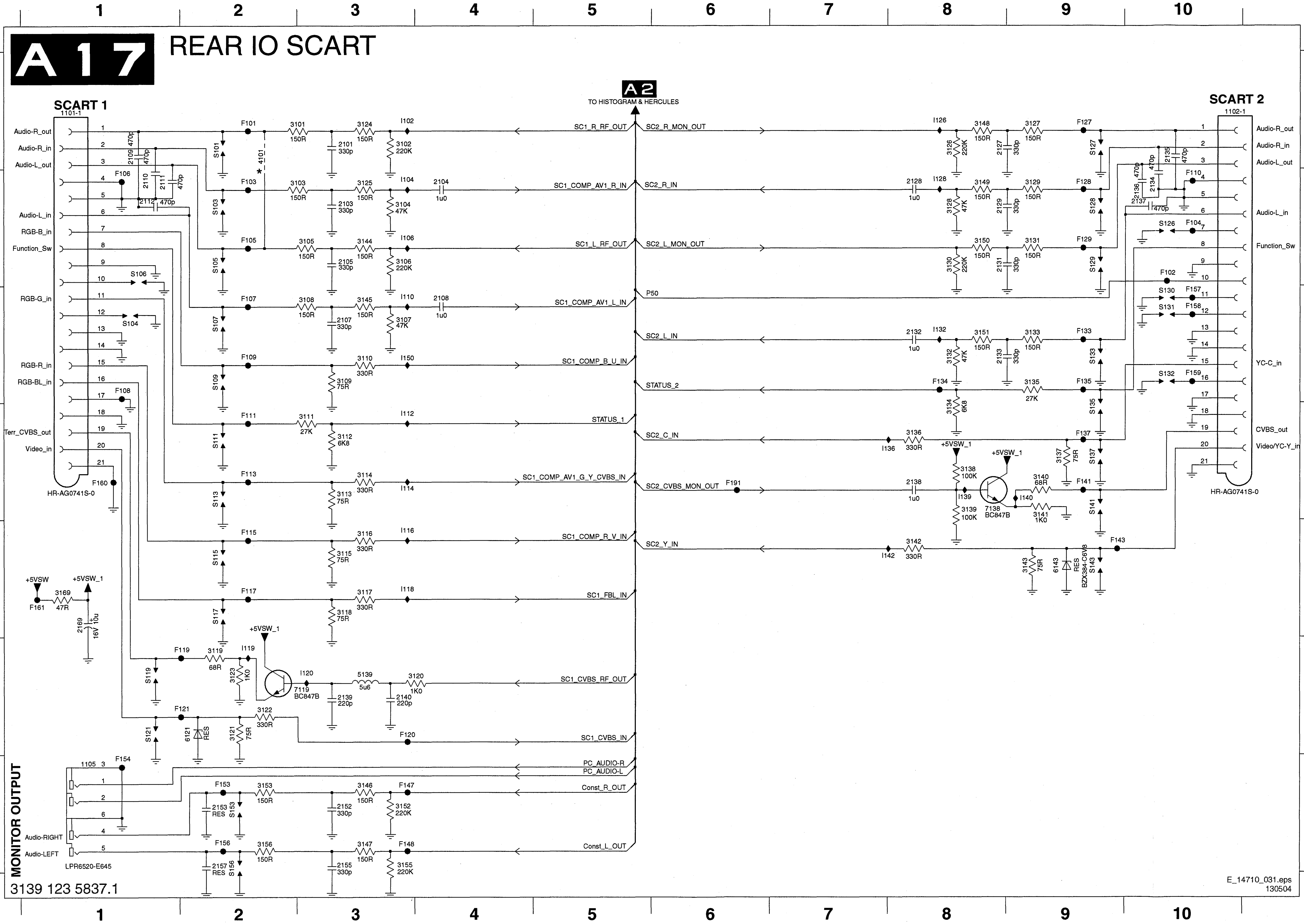
1251	A1
2251	B2
2252	B2
2253	B3
2254	B3
2255	B2
2261	D4
2262	D4
2263	D3
2264	D4
2265	E5
2266	E5
2268	E7
2269	E7
2271	B6
3251	A2
3259	D2
3260	D3
3266	E5
3267	E6
3268	E6
3270	B6
3271	B6
3273	A7
3274	A7
4251	A2
4255	B2
5251	A3
5252	A3
5257	B3
5258	B3
5259	C3
5262	D3
5267	D6
5268	D7
6259	D3
6262	D3
6267	E6
6270	A6
7260	C4
7262	D4
7271	B7
7272	B7
F251	A1
F252	A1
F253	A1
F254	A1
F255	A1
F257	B1
F258	A4
F259	B7
F260	C7
I251	C3
I252	C4
I253	C4
I254	D3
I255	D4
I256	D5
I257	E5
I258	E5
I259	E5
I260	D7
I261	A6
I262	B6
I263	B6
I264	A2

SSB: PCHD IO


A16
PCHD-IO
VGA Connector
1687
788624-1
F680
F681
F682
F683
F684
F685
F686
F687
F688
F689
3782
150R
3784
1K0
I682
BAS316
6693
I683
5686
DDC_5V
I684
3783
10K
+5VSWI
SCL_VGA
SDA_VGA
2784
330p
2785
330p
2688
100n
5683
3683
75R
5684
3684
75R
5687
3687
75R
3689
100R
3788
1K0
5685
3685
2K2
3686
220R
2686
100p
5680
3680
2K2
3681
220R
2681
100p
RED_PR
GRN_Y
BLU_PB
I690
PC_HD_DET+
PC_HD_DET-
I681
HS
I680
VS
A13
TO PCHD-MUX
A7
TO SCALER
DDC_5V
I685
2693
100n
(256x8)
EEPROM
WC
SCL
SDA
ADR
7693
M24C02-WMN6
F690
3693
10K
3696
10K
3697
10K
3786 RES
3787 RES
UART_RX
UART_TX
A12
TO HDMI
TO 1105 OF REAR IO SCART
A17
PC_AUDIO-L
PC_AUDIO-R
I722
I723
S698
S699
3698
150R
3699
150R
2698
100p
3700
47K
2699
100p
3781
47K
I699
PC_AUDIO_L
I700
PC_AUDIO_R
3139 123 5837.1
E_14710_030.eps
130504

1687	A1
2681	D7
2686	D7
2688	C2
2693	D2
2698	F3
2699	F4
2784	C1
2785	C2
3680	D6
3681	D6
3683	B6
3684	B6
3685	D6
3686	D6
3687	C6
3689	C5
3693	E3
3696	D4
3697	D4
3698	F3
3699	F3
3700	F4
3781	F4
3782	B2
3783	B3
3784	B2
3786	E5
3787	E5
3788	C6
5680	D6
5683	A6
5684	B6
5685	D6
5686	B3
5687	B6
6693	B3
7693	E2
F680	B2
F681	B2
F682	B2
F683	B2
F684	B2
F685	B2
F686	B2
F687	C2
F688	B2
F689	B2
F690	E3
I680	D8
I681	D8
I682	B2
I683	B3
I684	B2
I685	D2
I690	C8
I699	F8
I700	F8
I722	F2
I723	F2
S698	F2
S699	F2

SSB: Rear IO Scart


A17
REAR IO SCART
A2
TO HISTOGRAM & HERCULES
SCART 1
1101-1
Audio-R_out
Audio-R_in
Audio-L_out
Audio-L_in
RGB-B_in
Function_Sw
RGB-G_in
RGB-R_in
RGB-BL_in
Terr_CVBS_out
Video_in
HR-AG0741S-0
SCART 2
1102-1
Audio-R_out
Audio-R_in
Audio-L_out
Audio-L_in
Function_Sw
YC-C_in
CVBS_out
Video/YC-Y_in
HR-AG0741S-0
SC1_R_RF_OUT
SC1_COMP_AV1_R_IN
SC1_L_RF_OUT
SC1_COMP_AV1_L_IN
SC1_COMP_B_U_IN
STATUS_1
SC1_COMP_AV1_G_Y_CVBS_IN
SC1_COMP_R_V_IN
SC1_FBL_IN
SC1_CVBS_RF_OUT
SC1_CVBS_IN
PC_AUDIO-R
PC_AUDIO-L
Const_R_OUT
Const_L_OUT
SC2_R_MON_OUT
SC2_R_IN
SC2_L_MON_OUT
P50
SC2_L_IN
STATUS_2
SC2_C_IN
SC2_CVBS_MON_OUT
SC2_Y_IN
+5VSW
+5VSW_1
7119 BC847B
7138 BC847B
BZX384-C6V8
MONITOR OUTPUT
1105
Audio-RIGHT
Audio-LEFT
LPR6520-E645
3139 123 5837.1
E_14710_031.eps
130504
1 2 3 4 5 6 7 8 9 10
A B C D E F G

1101-1 A1
1102-1 A10
1105 G1
2101 A3
2103 B3
2104 B4
2105 B3
2107 C3
2108 C4
2109 A1
2110 B1
2111 B1
2112 B1
2127 A8
2128 B8
2129 B8
2131 B8
2132 C8
2133 C8
2134 B10
2135 A10
2136 B10
2137 B10
2138 D8
2139 F3
2140 F3
2152 G3
2153 G2
2155 G3
2157 G2
2169 E1
3101 A3
3102 A3
3103 B3
3104 B3
3105 B3
3106 B3
3107 C3
3108 C3
3109 C3
3110 C3
3111 D3
3112 D3
3113 D3
3114 D3
3115 E3
3116 E3
3117 E3
3118 E3
3119 F2
3120 F4
3121 F2
3122 F2
3123 F2
3124 A3
3125 B3
3126 A8
3127 A9
3128 B8
3129 B9
3130 B8
3131 B9
3132 C8
3133 C9
3134 D8
3135 C9
3136 D8
3137 D9
3138 D8
3139 D8
3140 D9
3141 D9
3142 E8
3143 E9
3144 B3
3145 C3
3146 G3
3147 G3
3148 A8
3149 B8
3150 B8
3151 C8
3152 G3
3153 G2
3155 G3
3156 G2
3169 E1
4101 A2
5139 F3
6121 F2
6143 E9
7119 F3
7138 D8
F101 A2
F102 B10
F103 B2
F104 B10
F105 B2
F106 B1
F107 C2
F108 C1
F109 C2
F110 B10
F111 D2
F113 D2
F115 E2
F117 E2
F119 F2
F120 F3
F121 F2
F127 A9
F128 B9
F129 B9
F133 C9
F134 C8
F135 C9
F137 D9
F141 D9
F143 E9
F147 G3
F148 G3
F153 G2
F154 G1
F156 G2
F157 C10
F158 C10
F159 C10
F160 D1
F161 E1
F191 D6
I102 A3
I104 B3
I106 B3
I110 C3
I112 D3
I114 D3
I116 E3
I118 E3
I119 F2
I120 F3
I126 A8
I128 B8
I132 C8
I136 D8
I139 D8
I140 D9
I142 E8
I150 C3
S101 A2
S103 B2
S104 C1
S105 B2
S106 B1
S107 C2
S109 C2
S111 D2
S113 D2
S115 E2
S117 E2
S119 F1
S121 F1
S126 B10
S127 A9
S128 B9
S129 B9
S130 C10
S131 C10
S132 C10
S133 C9
S135 D9
S137 D9
S141 D9
S143 E9
S153 G2
S156 G2

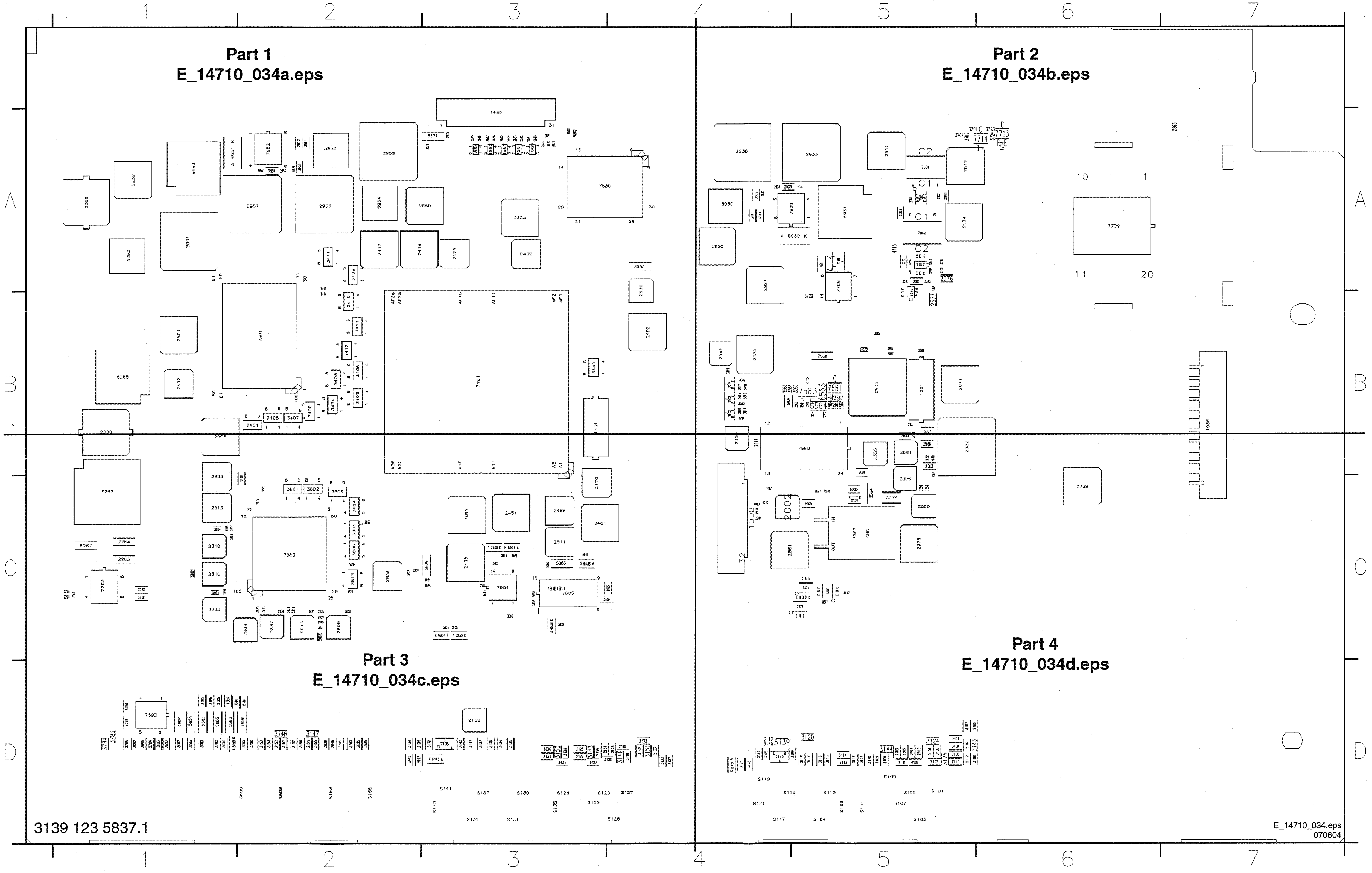
Layout Small Signal Panel (Top Side Overview)

1001	B5	2027	C5	2127	D3	2169	D3	2386	A5	2530	A4	2699	D2
1008	C4	2035	B5	2128	D4	2262	A1	2392	A5	2560	C5	2708	A5
1036	B7	2040	B4	2129	D4	2263	C1	2396	C5	2561	C4	2709	C6
1401	B3	2061	B5	2131	D3	2264	C1	2401	C3	2562	C4	2784	D1
1450	A3	2063	B5	2132	D4	2265	C1	2402	B4	2563	B4	2785	D1
1860	A3	2071	B5	2133	D4	2266	C1	2417	A2	2564	C5	2803	C1
1861	A3	2089	C4	2134	D3	2268	B1	2418	A2	2565	A7	2806	C2
1862	A3	2101	D5	2135	D3	2269	A1	2434	A3	2605	C3	2807	C1
1863	A3	2103	D5	2136	D3	2355	B5	2435	C3	2606	C3	2808	C2
1864	A3	2104	D5	2137	D4	2356	C5	2451	C3	2611	C3	2809	C2
2002	C4	2105	D5	2138	D2	2357	C5	2465	C3	2625	C4	2810	C1
2006	B5	2107	D5	2139	D4	2360	B4	2470	C3	2626	C4	2813	C2
2007	B5	2108	D5	2140	D4	2375	C5	2478	A3	2681	D2	2814	C2
2008	B5	2109	D5	2152	D2	2376	A5	2482	A3	2686	D1	2818	C1
2009	B5	2110	D5	2153	D2	2377	B5	2495	C3	2688	D1	2819	C2
2012	A5	2111	D5	2155	D2	2380	B4	2501	B1	2693	D1	2820	C2
2024	A5	2112	D5	2157	D2	2382	B5	2502	B1	2698	D2	2824	C1

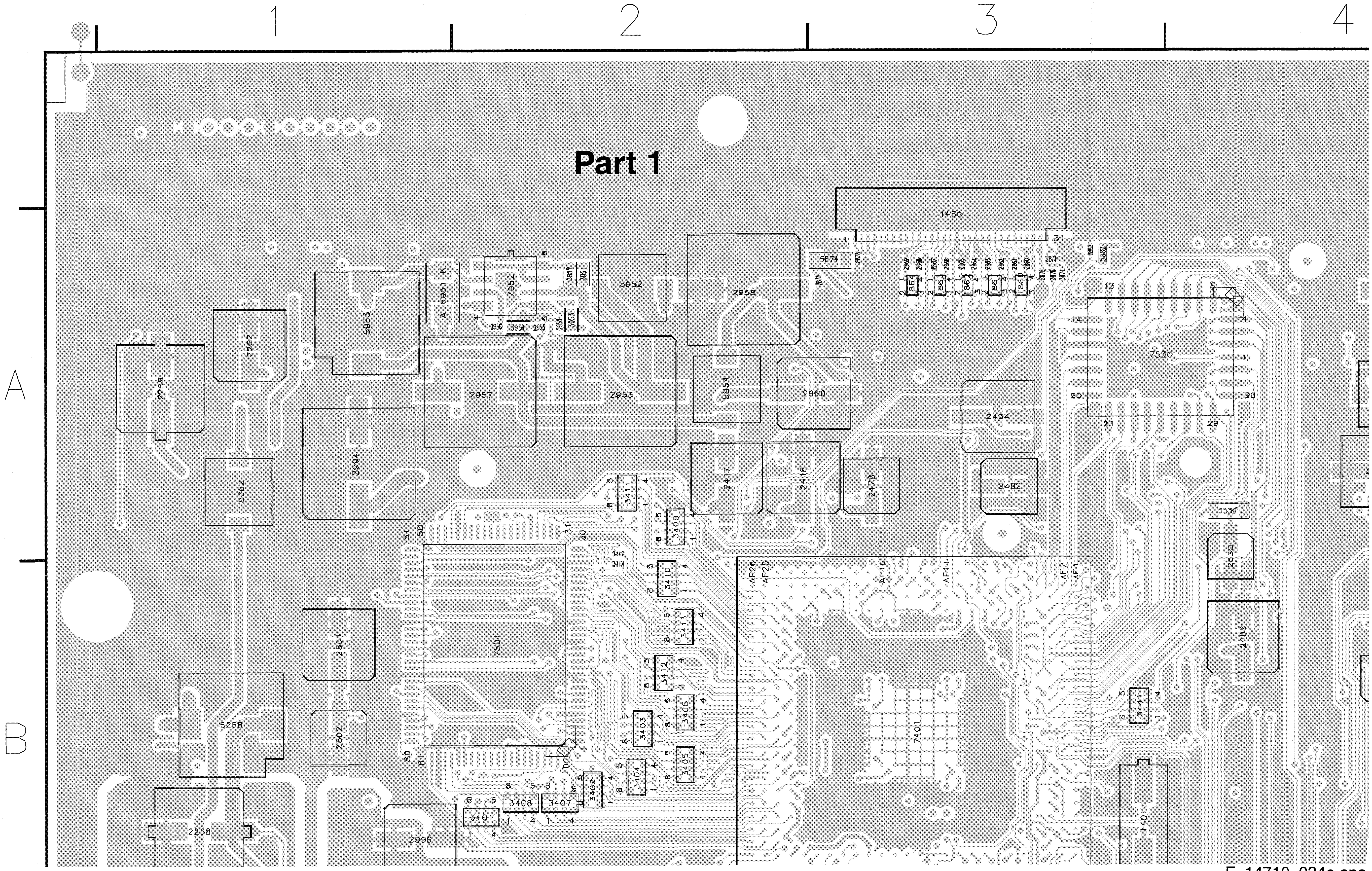
2825	C2	2867	A3	2953	A2	3016	B4	3105	D5	3122	D4	3139	D2
2826	C2	2868	A3	2954	A2	3017	B4	3106	D5	3123	D4	3140	D3
2830	C1	2869	A3	2955	A2	3018	B4	3107	D5	3124	D5	3141	D3
2833	C1	2870	A3	2956	A2	3019	B4	3108	D5	3125	D5	3142	D2
2834	C2	2871	A3	2957	A2	3049	B4	3109	D5	3126	D3	3143	D2
2837	C2	2874	A3	2958	A2	3050	B4	3110	D5	3127	D3	3144	D5
2838	C2	2875	A3	2960	A3	3051	B4	3111	D5	3128	D4	3145	D5
2839	C2	2882	A3	2994	A1	3052	B4	3112	D5	3129	D4	3146	D2
2840	C2	2911	A5	2996	B1	3053	B5	3113	D5	3130	D3	3147	D2
2843	C1	2920	A4	3001	A5	3060	B5	3114	D5	3131	D3	3148	D3
2860	A3	2921	A4	3002	A5	3085	B5	3115	D5	3132	D4	3149	D4
2861	A3	2930	A4	3003	A5	3086	B5	3116	D5	3133	D4	3150	D3
2862	A3	2931	A5	3004	A5	3087	B5	3117	D5	3134	D3	3151	D4
2863	A3	2932	A4	3007	B5	3101	D5	3118	D5	3135	D3	3152	D2
2864	A3	2933	A5	3011	B4	3102	D5	3119	D4	3136	D3	3153	D2
2865	A3	2934	A4	3014	B4	3103	D5	3120	D5	3137	D3	3155	D2
2866	A3	2935	B5	3015	B4	3104	D5	3121	D4	3138	D3	3156	D2

3169	D5	3403	B2	3563	B5	3635	C3	3701	A5	3803	C2
3266	C1	3404	B2	3564	B5	3638	C3	3702	A5	3804	C2
3267	C1	3405	B2	3565	B5	3639	C3	3704	A5	3805	C2
3268	C1	3406	B2	3566	B4	3680	D1	3712	A5	3806	C2
3359	C5	3407	B2	3567	B5	3681	D1	3713	A5	3807	C2
3364	C4	3408	B2	3568	B5	3683	D1	3723	A6	3813	C2
3371	C5	3409	A2	3605	C3	3684	D1	3724	A6	3821	C2
3372	C5	3410	B2	3606	C3	3685	D1	3729	B5	3824	C2
3374	C5	3411	A2	3607	C3	3686	D1	3781	D2	3825	C2
3378	A5	3412	B2	3608	C3	3687	D1	3782	D1	3826	C2
3380	A5	3413	B2	3609	C3	3689	D2	3783	D1	3830	C2
3381	A5	3414	B2	3610	C3	3693	D1	3784	D1	3831	C2
3382	A5	3441	B3	3621	C2	3696	D1	3786	D1	3834	C2
3383	A5	3447	A2	3622	C2	3697	D1	3787	D1	3835	C1
3386	A5	3560	B5	3623	C3	3698	D2	3788	D2	3870	A3
3401	B2	3561	B5	3624	C3	3699	D2	3801	C2	3871	A3
3402	B2	3562	B5	3634	C3	3700	D2	3802	C2	3930	A4

3931	A4	5004	B5	5687	D1	6564	B5	7119	D4	7693	D1
3932	A4	5005	C5	5801	C1	6604	C3	7138	D3	7706	A5
3933	A4	5006	B4	5802	C1	6605	C3	7262	C1	7709	A6
3951	A2	5072	B5	5804	C1	6634	C3	7370	C5	7710	A5
3952	A2	5139	D4	5805	C2	6635	C3	7371	C5	7713	A6
3953	A2	5262	A1	5874	A3	6638	C3	7372	C5	7714	A6
3954	A2	5267	C1	5882	A3	6639	C3	7376	B5	7808	C2
4009	C4	5268	B1	5930	A4	6693	D1	7377	A5	7930	A4
4010	C4	5530	A4	5931	A5	6701	A5	7401	B3	7952	A2
4062	B5	5560	C5	5952	A2	6930	A5	7501	B2		
4101	D5	5605	C3	5953	A1	6951	A1	7530	A3		
4609	C3	5636	C3	5954	A2	7001	A5	7560	B5		
4610	C3	5680	D1	6005	C5	7002	A5	7561	B5		
4611	C3	5683	D1	6121	D4	7003	A5	7562	C5		
4714	A6	5684	D1	6143	D3	7012	B4	7563	B5		
4715	A5	5685	D1	6267	C1	7013	B4	7604	C3		
5003	B5	5686	D2	6563	B5	7014	B4	7605	C3		



Layout Small Signal Panel (Top Side Part 1)


1
2
3
4
A
B
Part 1
1450
5874
7952
6951
5952
2958
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2262
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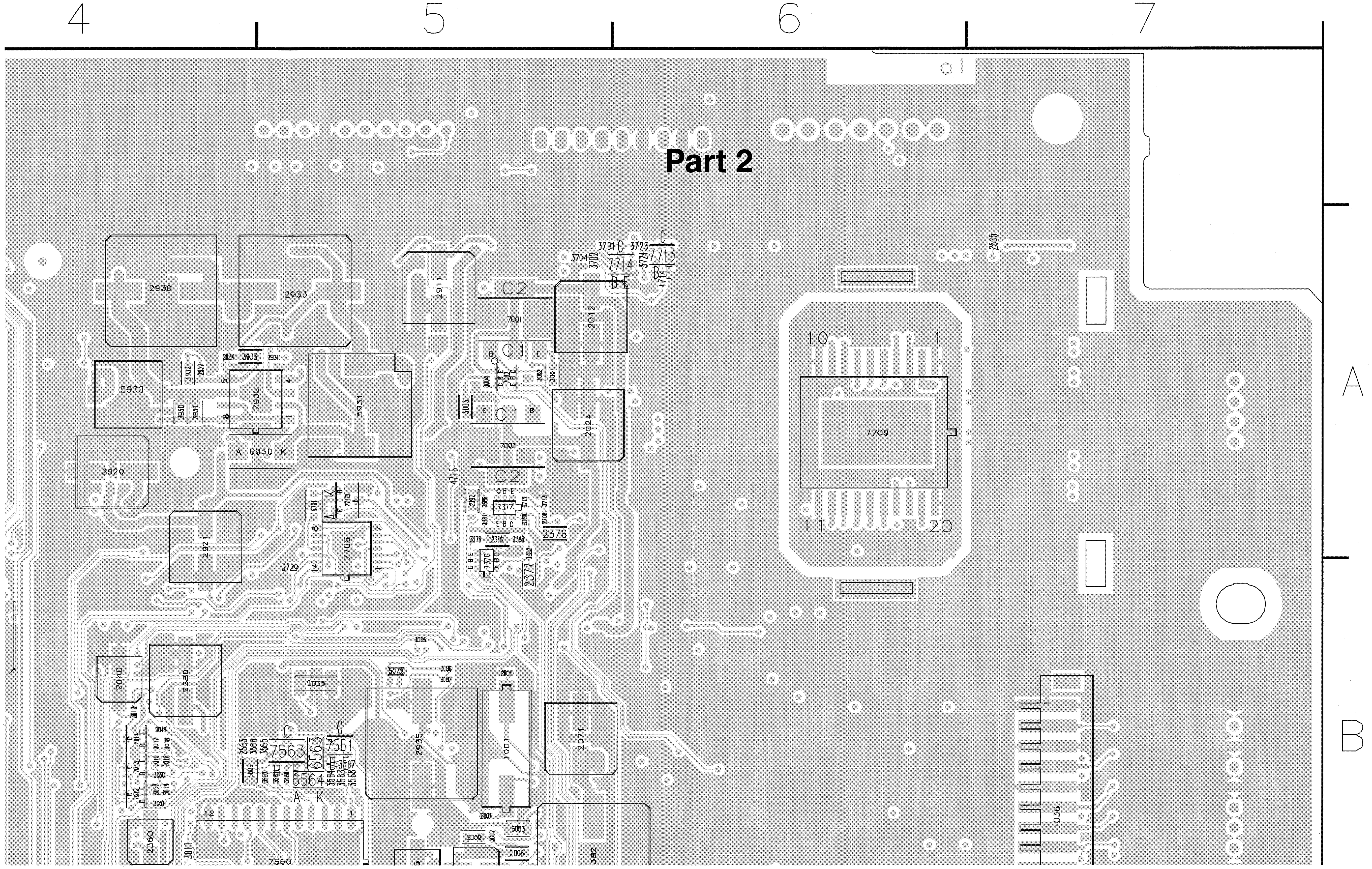
2957
2953
5954
2960
2434
7530
2994
5262
2417
2418
2478
2482
3411
3409
3410
3413
3412
3406
3403
3405
3404
3402
3401
3408
3407
7501
7401
2501
2502
5268
2268
2996
3530
2530
2402
3441
1401
AF26
AF25
AF16
AF11
AF2
AF1

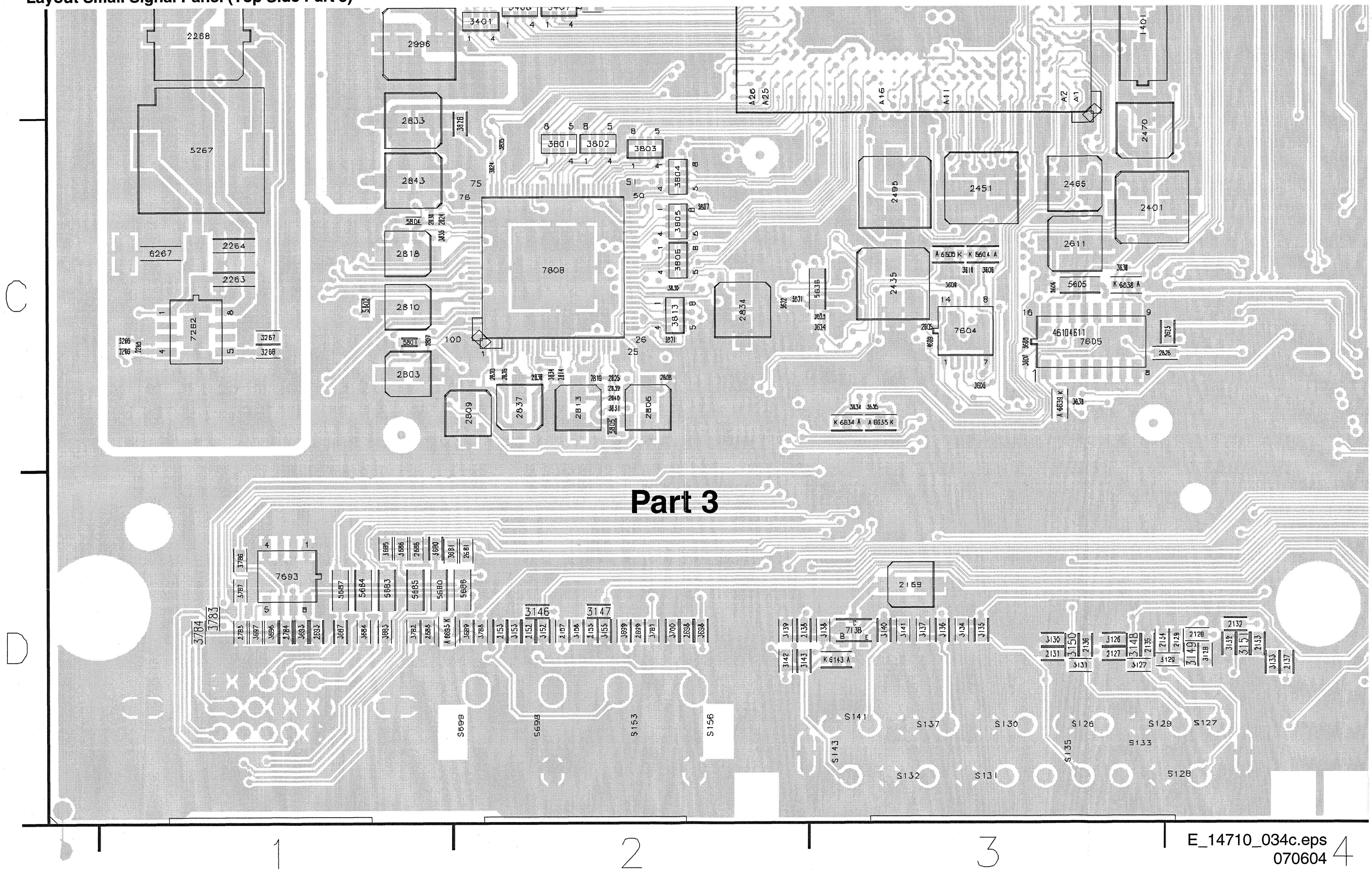
E_14710_034a.eps
070604

Layout Small Signal Panel (Top Side Part 2)


4
5
6
7
A
B
Part 2
2930
2933
2911
C2
7001
2012
3701
3723
3704
7714
7713
C1
5930
7930
6931
3933
2024
C1
7003
2920
6930
A
K
C2
4715
7377
2376
2321
7706
3729
7376
2377
7709
10
1
11
20
2040
2380
2036
3072
2935
1001
2071
7563
6563
7561
6564
2360
3011
7580
12
1
5003
2009
2008
1036
2566

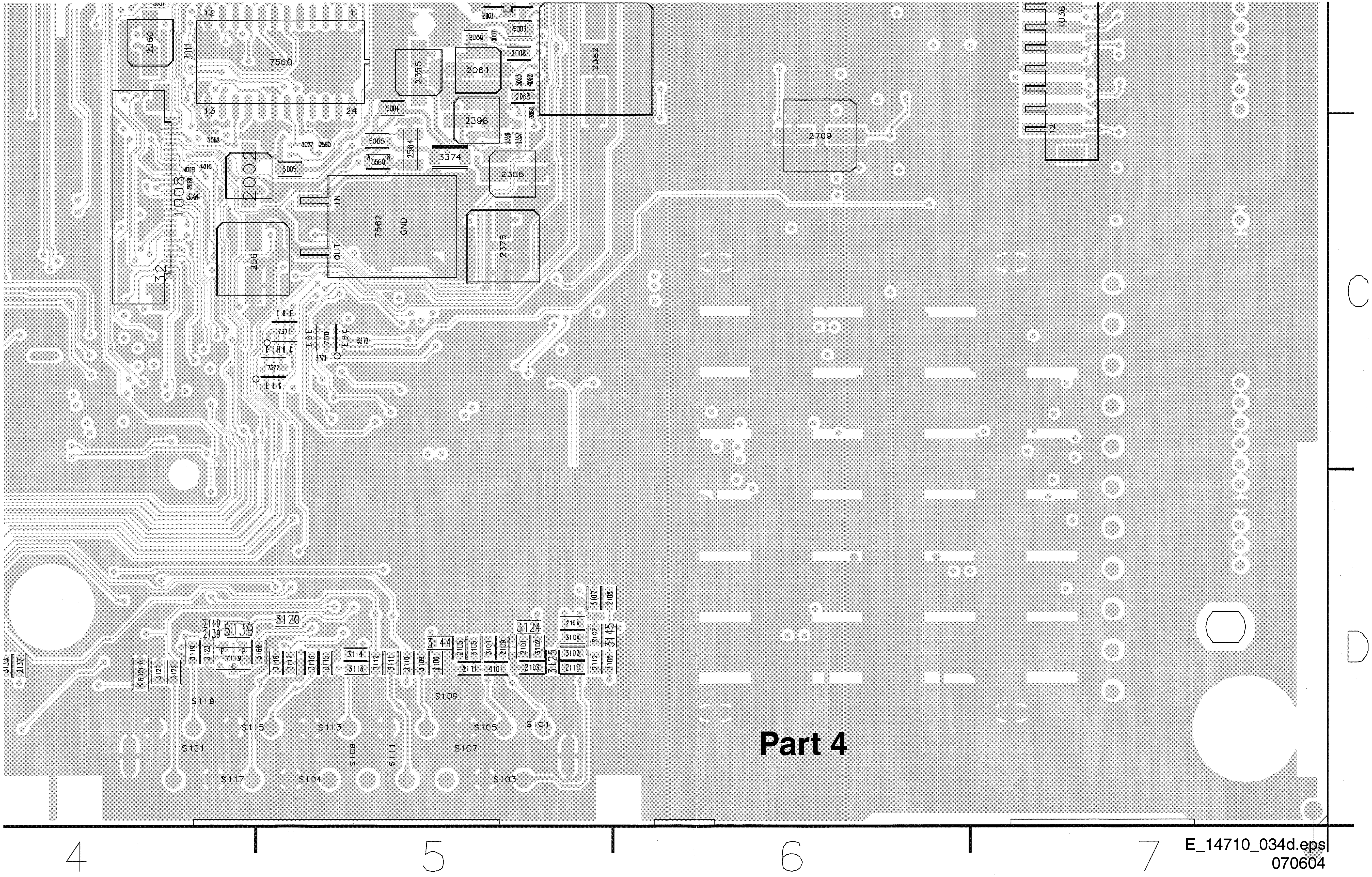
E_14710_034b.eps
070604

Layout Small Signal Panel (Top Side Part 3)


Part 3
C
D
1
2
3
4
2268
2996
3401
5267
2833
2843
2818
2810
2803
2809
2837
2813
2806
2834
3801
3802
3803
3804
3805
3806
3813
7808
6267
2264
2263
7262
3267
3268
2495
2451
2465
2401
2470
2611
2435
5605
7604
7605
1401
A26
A25
A16
A11
A2
A1
K 6834 A
A 6835 K
A 6600 K
K 6604 A
K 6638 A
A 6639 K
7693
3784
3783
3146
3147
2159
7138
K 6143 A
3150
3148
3149
3151
5699
5698
S153
S156
S141
S137
S130
S126
S129
S127
S133
S143
S135
S132
S131
S128

E_14710_034c.eps
070604

Layout Small Signal Panel (Top Side Part 4)


Part 4
C
D
4
5
6
7
7560
7562
1008
1036
2002
2061
2355
2360
2375
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2386
2396
2561
2564
2709
3011
3374
5003
5004
5005
5008
5139
3120
3124
3144
3145
3125
7119
S101
S103
S104
S105
S107
S108
S109
S111
S113
S115
S117
S119
S121
IN
OUT
GND

E_14710_034d.eps
070604

Layout Small Signal Panel (Bottom Side Overview)

1004	C4
1009	C3
1301	D2
1328	C2
1329	B2
1330	C2
1408	A5
1409	B7
1530	A5
1532	B4
1681	D2
1701	C2
1951	A5
2000	B2
2001	B2
2003	C1
2004	B2
2005	B2
2010	B2
2011	B2
2013	C3
2014	C3
2015	C3
2016	C3
2017	C3
2018	C3
2019	A3
2020	A3
2021	A4
2022	B4
2023	C4
2025	B4
2026	B4
2028	A3
2029	B4
2030	B4
2031	B4
2032	B4
2033	B4
2034	A3
2036	B1
2037	B1
2041	B4
2042	A3
2043	B2
2044	B4
2045	C1
2046	C1
2047	A4
2048	C1
2049	C1
2050	C1
2051	A3
2052	B4
2053	C4
2054	B2
2055	B4
2056	B4
2057	C1
2058	C1
2059	B1
2060	B2
2062	D1
2064	B2
2065	C3
2066	C3
2067	D1
2068	B2
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2070	B3
2072	B3
2073	B3
2074	B3
2076	B3
2077	B3
2078	B4
2079	B1
2080	B1
2081	B1
2082	C3
2083	C3
2084	B4
2085	B3
2086	B3
2087	B1
2088	B1
2090	B1
2091	B1
2092	B1
2093	B1
2094	B1
2095	C1
2096	C1
2097	C1
2098	C1
2099	B3
2251	A7
2252	A7
2253	A7
2254	A7
2255	A7
2261	A7
2271	A7
2302	D1
2303	D1
2307	C2
2308	C1
2309	C2
2311	D2
2313	C2
2314	C2
2317	C3
2318	C3
2321	C2
2324	C2
2358	C3
2359	C2
2361	B4
2363	C4
2364	B4
2365	C4
2366	B4
2367	B4
2368	C4
2370	C3
2371	C3
2372	C3
2373	C3
2374	C3
2378	B4
2381	B4
2387	C3
2388	C3
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2397	C3
2398	C3
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2404	B5
2405	B5
2406	B5
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2409	B5
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2481	B5
2483	B5
2484	B5
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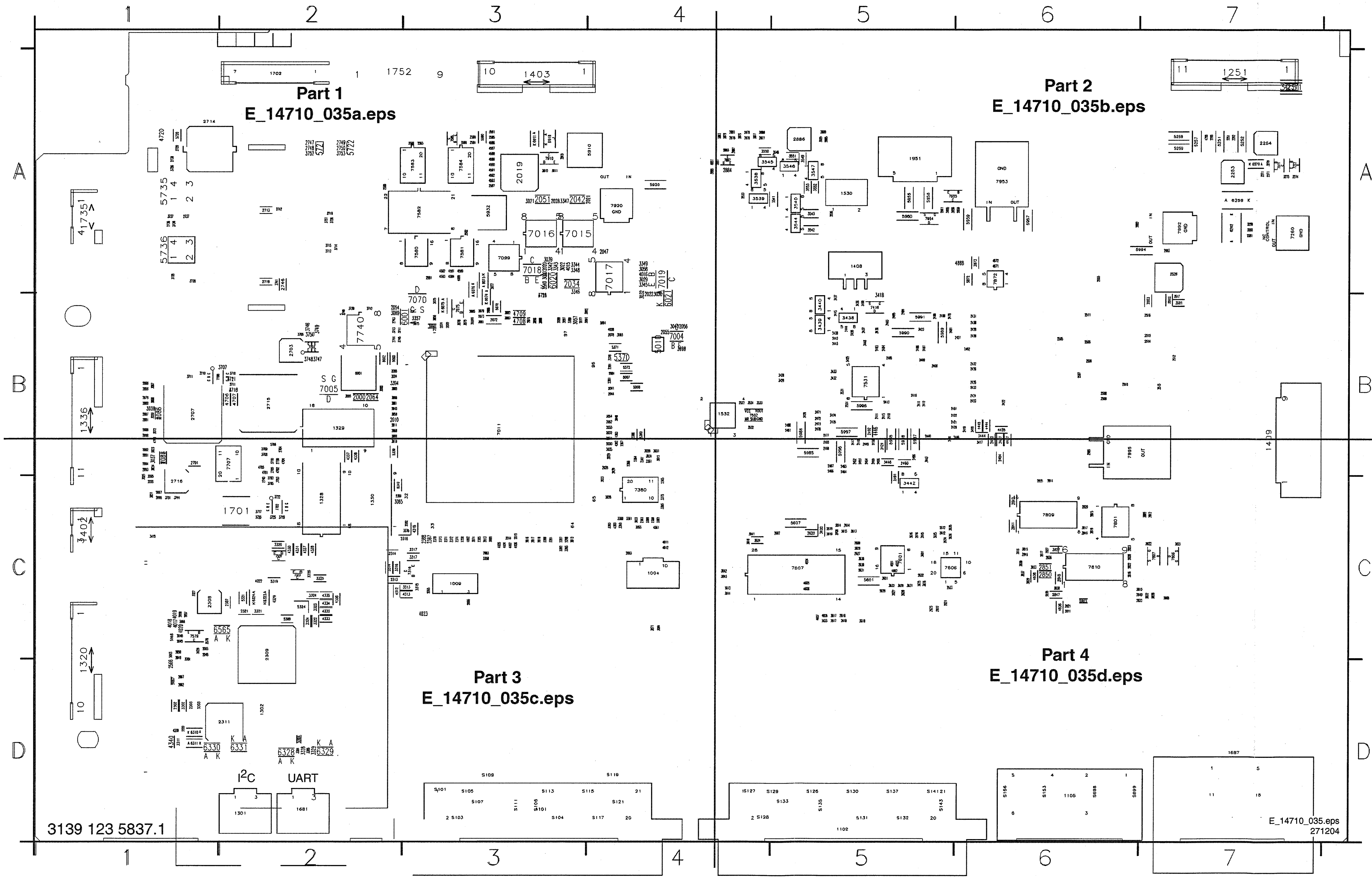
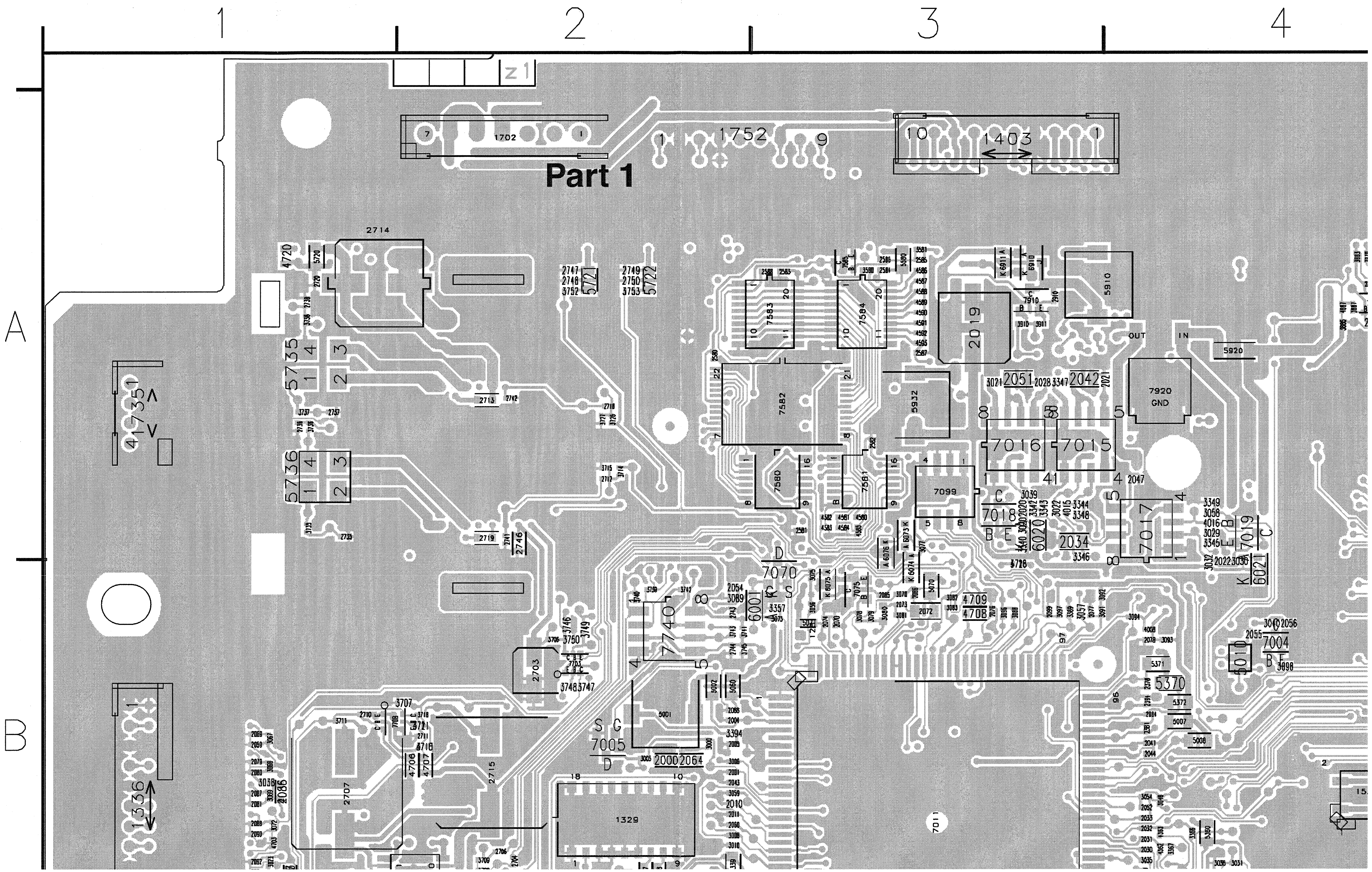
2486	B5
2487	B5
2488	B5
2490	B5
2491	C5
2492	B5
2493	B6
2494	B6
2496	B5
2503	A6
2504	B6
2505	B6
2506	B6
2507	B6
2508	B6
2509	B6
2510	B6
2511	B6
2512	B7
2513	B7
2514	B7
2515	B7
2516	B7
2517	B7
2526	A7
2531	B5
2532	B4
2533	A4
2566	D1
2580	A2
2581	A3
2582	A3
2583	A3
2584	A3
2585	A3
2586	A3
2587	A3
2588	A3
2601	C5
2607	C5
2608	C5
2609	C5
2610	C5
2612	C5
2613	C5
2614	C5
2615	C5
2616	C5
2617	C5
2618	C5
2619	C5
2620	C5
2621	C5
2622	C5
2623	C5
2624	C4
2627	C5
2628	C5
2629	C5
2630	C5
2631	C5
2632	C5
2633	C5
2634	C5
2635	C5
2636	C5
2701	B1
2702	C2
2703	B2
2704	B2
2705	B2
2706	B2
2707	B1
2710	B1
2711	B2
2712	A2
2713	A2
2714	A1
2715	B2
2716	C1
2718	A2
2719	A2
2720	A1
2735	A1
2736	A1
2737	A1
2738	A1
2739	B2
2740	C2
2741	A2
2742	A2
2743	B2
2744	B2
2746	A2
2747	A2
2748	A2
2749	A2
2750	A2
2811	C6
2812	C7
2815	C6
2816	C6
2817	C6
2821	C6
2822	C6
2823	C6
2827	C6
2828	C6
2829	C6
2832	C7
2835	C6
2836	C6
2841	C6
2842	C6
2844	C6
2845	C6
2846	C6
2847	C6
2848	C6
2849	C7
2850	C6
2851	C6
2872	A6
2876	A4
2877	A4
2878	A4
2879	A4
2880	A4
2881	A4
2883	A4
2884	A4
2885	A5
2886	A5
2887	A4
2889	A5
2910	A3
2959	A6
2961	A5
2992	A6
2993	A7
2995	B6
3000	B2
3005	B2
3006	B2
3008	B2
3009	C3
3010	B2
3012	B4
3013	C3
3020	A3
3021	A3
3022	A3
3023	B1
3024	B1
3025	C1
3026	C1
3027	C1
3028	C4
3029	A4
3030	B4
3031	B4
3032	B4
3033	C4
3034	B4
3035	B4
3036	B4
3037	B1
3038	B1
3039	A3
3040	B4
3048	B4
3054	B4
3055	C4
3056	B3
3057	B3
3058	A4
3059	B2
3063	C1
3064	C4
3065	C2
3066	C1
3067	B1
3068	B1
3069	B1
3070	B3
3071	C4
3072	B1
3073	B3
3074	C3
3075	B3
3077	A3
3078	B3
3079	B3
3080	B3
3081	B3
3082	B3
3083	B3
3084	D1
3088	B3
3089	B2
3091	B3
3092	B3
3093	B4
3094	B4
3096	B3
3097	B3
3098	B4
3251	A7
3259	A7
3260	A7
3270	A7
3271	A7
3273	A7
3274	A7
3302	D1
3303	D1
3304	D2
3305	D2
3309	D1
3311	D1
3313	C3
3314	C2
3315	C3
3316	C2
3317	C3
3319	C2
3320	C2
3321	C2
3322	C2
3323	C2
3324	C2
3325	C2
3326	C2
3327	C1
3328	D2
3329	D2
3340	A3
3342	A3
3343	A3
3344	A3
3345	A4
3346	A3
3347	A3
3348	A3
3349	A4
3357	B3
3358	C3
3360	C4
3361	C4
3362	C4
3363	C4
3365	C4
3366	B4
3367	B4
3368	C4
3369	C4
3370	C3
3373	C4
3389	B3
3390	C3
3391	C3
3392	C3
3393	C3
3394	B2
3415	C1
3416	B6
3417	B6
3418	B5
3422	B6
3423	B5
3424	B5
3425	B5
3426	B5
3427	B6
3428	B5
3429	B5
3432	B5
3433	B5
3436	B5
3437	B5
3438	B5
3439	B5
3440	B5
3442	C5
3443	B5
3444	B6
3446	B5
3448	B5
3460	B5
3501	B7
3502	B7
3503	B7
3531	B5
3532	B4
3533	B4
3534	B4
3536	A5
3538	A4
3539	A4
3540	A5
3541	A5
3542	A5
3543	A5
3544	A5
3545	A4
3546	A5
3547	A5
3548	A5
3549	A5
3550	A4
3551	A5
3552	A5
3553	A5
3579	C1
3580	A3
3581	A3
3601	C5
3612	C5
3613	C5
3614	C5
3615	C5
3616	C5
3617	C5
3618	C5
3619	C5
3620	C5
3625	C5
3626	C5
3627	C5
3628	C5
3629	C5
3630	C5
3631	C5
3632	C5
3633	C5
3641	C4
3642	C4
3643	C4
3644	C4
3645	C4
3646	C4
3703	C2
3705	C2
3706	B2
3707	B2
3708	B2
3709	B2
3710	B2
3711	B1
3714	A2
3715	A2
3716	B2
3717	C2
3718	B2
3719	C2
3720	C2
3721	B2
3722	C2
3725	C2
3726	A2
3727	A2
3728	B3
3735	A1
3736	A1
3737	A1
3738	A1
3739	B2
3740	B2
3741	B2
3742	B2
3743	B2
3744	C1
3745	B2
3746	B2
3747	B2
3748	B2
3749	B2
3750	B2
3751	C1
3752	A2
3753	A2
3808	C7
3809	C7
3810	C7
3815	C6
3816	C6
3817	C6
3819	C6
3822	C7
3823	C7
3827	C6
3828	C7
3829	C6
3832	C7
3833	C6
3836	C6
3837	C6
3838	C6
3839	C6
3876	A4
3877	A4
3879	A4
3883	A4
3885	A5
3886	A4
3887	A4
3910	A3
3911	A3
3955	A5
3958	A5
4002	C3
4004	C3
4005	C3
4006	C3
4007	C3
4008	B4
4011	C4
4012	C4
4015	A3
4016	A4
4017	C1
4018	C1
4019	C1
4020	C1
4022	C2
4023	C3
4085	B1
4086	B1
4251	A7
4255	A7
4312	C2
4313	C3
4318	C3
4327	C2
4328	C2
4329	C2
4330	C2
4331	C2
4332	C2
4333	C2
4334	C2
4335	C2
4336	C2
4337	B2
4338	B2
4339	D1
4340	D1
4360	C4
4361	C4
4362	B4
4363	B4
4427	B6
4428	B6
4444	B6
4445	B6
4446	B5
4580	A3
4581	A3
4582	A3
4583	A3
4584	A3
4585	A3
4586	A3
4587	A3
4588	A3
4589	A3
4590	A3
4591	A3
4592	A3
4593	A3
4601	C5
4602	C5
4603	C5
4604	C5
4605	C5
4606	C5
4607	C5
4608	C5
4701	B2
4702	B2
4703	B1
4704	B2
4705	B2
4706	B2
4707	B2
4708	B3
4709	B3
4710	B2
4711	B2
4716	B3
4720	A1
4836	C6
4838	C6
4871	A6
4872	A6
4887	A4
4888	A6
5001	B2
5002	B2
5007	B4
5008	B4
5010	B4
5060	B2
5066	C1
5067	D1
5070	B3
5071	B3
5251	A7
5252	A7
5257	A7
5258	A7
5259	A7
5304	D2
5309	C2
5321	C2
5324	C2
5339	B2
5340	C2
5360	B4
5370	B4
5371	B4
5372	B4
5580	A3
5601	C5
5607	C5
5720	A1
5721	A2
5722	A2
5735	A1
5736	A1
5803	C6
5872	A6
5910	A4
5920	A4
5932	A3
5955	A5
5956	A5
5957	A6
5959	A6
5960	A5
5984	B5
5985	B5
5986	B5
5987	B5
5988	B5
5989	B5
5990	B5
5991	B5
5994	A7
5996	B5
5997	B5
5998	B5
6001	B3
6020	A3
6021	B4
6073	A3
6074	B3
6075	B3
6076	A3
6259	A7
6262	A7
6270	A7
6310	D1
6311	D1
6323	C2
6324	C2
6328	D2
6329	D2
6330	D1
6331	D2
6565	C2
6910	A3
6911	A3
7004	B4
7005	B2
7011	B3
7015	A3
7016	A3
7017	A4
7018	A3
7019	A4
7070	B3
7075	B3
7099	A3
7260	A7
7271	A7
7272	A7
7316	C3
7320	C2
7325	C2
7360	C4
7416	B5
7531	B5
7532	B4
7579	C1
7580	A3
7581	A3
7582	A3
7583	A3
7584	A3
7585	A3
7601	C5
7606	C5
7607	C5
7702	C2
7703	B2
7707	B2
7708	B1
7740	B2
7801	C6
7806	C7
7807	C7
7809	C6
7810	C6
7872	A6
7887	A4
7910	A3
7920	A4
7953	A6
7954	A5
7955	A5
7992	A7
7995	B6

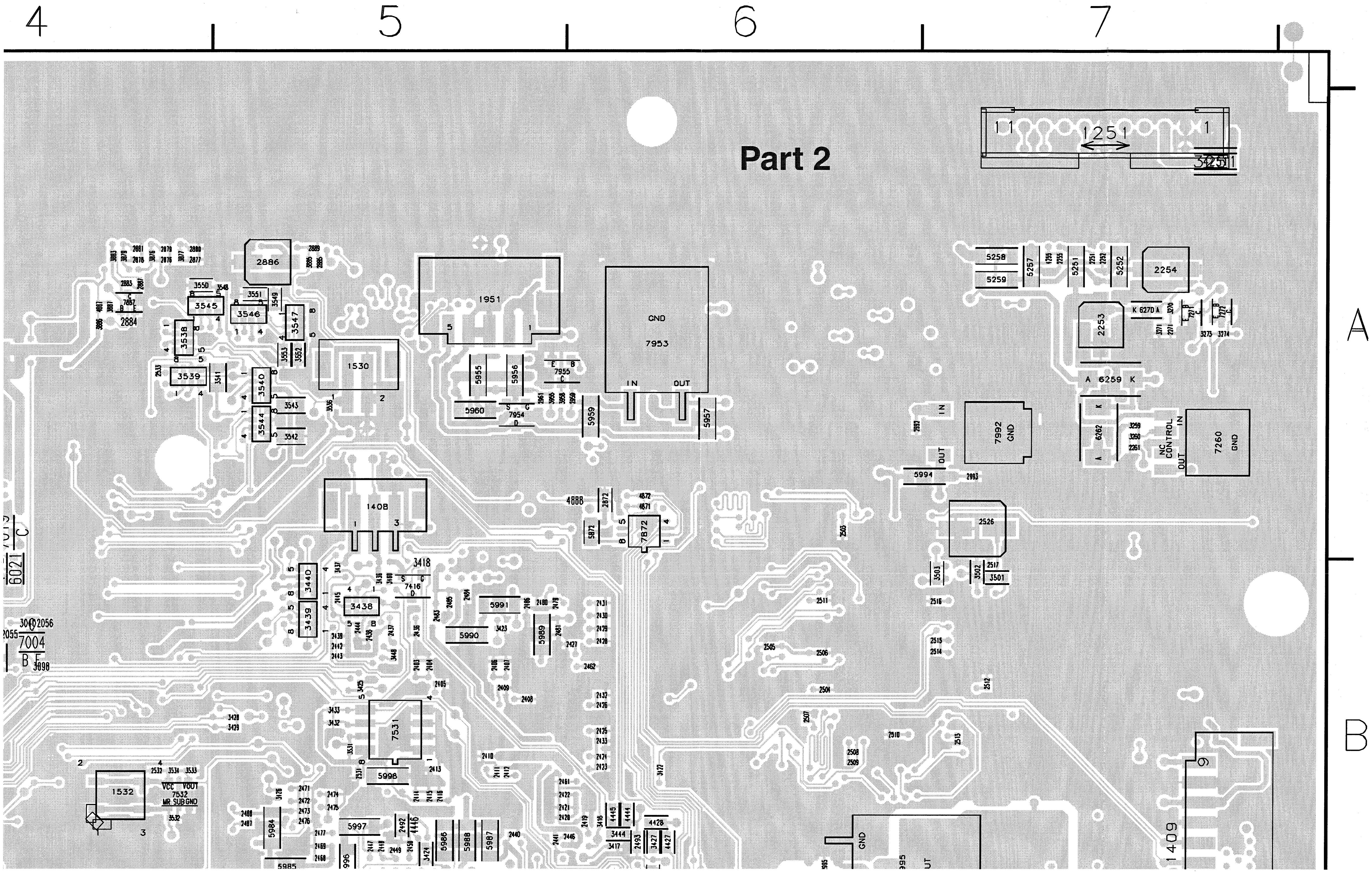


Layout Small Signal Panel (Bottom Side Part 1)


1
2
3
4
A
B
Part 1
1702
1752
1403
2714
7583
7584
7582
5932
2019
5910
7920
GND
7016
7015
7099
7018
7017
7019
7070
7740
7005
7004
1329
5001
7011
2703
2707
2715
5735
5736
4173
1336
5920
OUT
IN

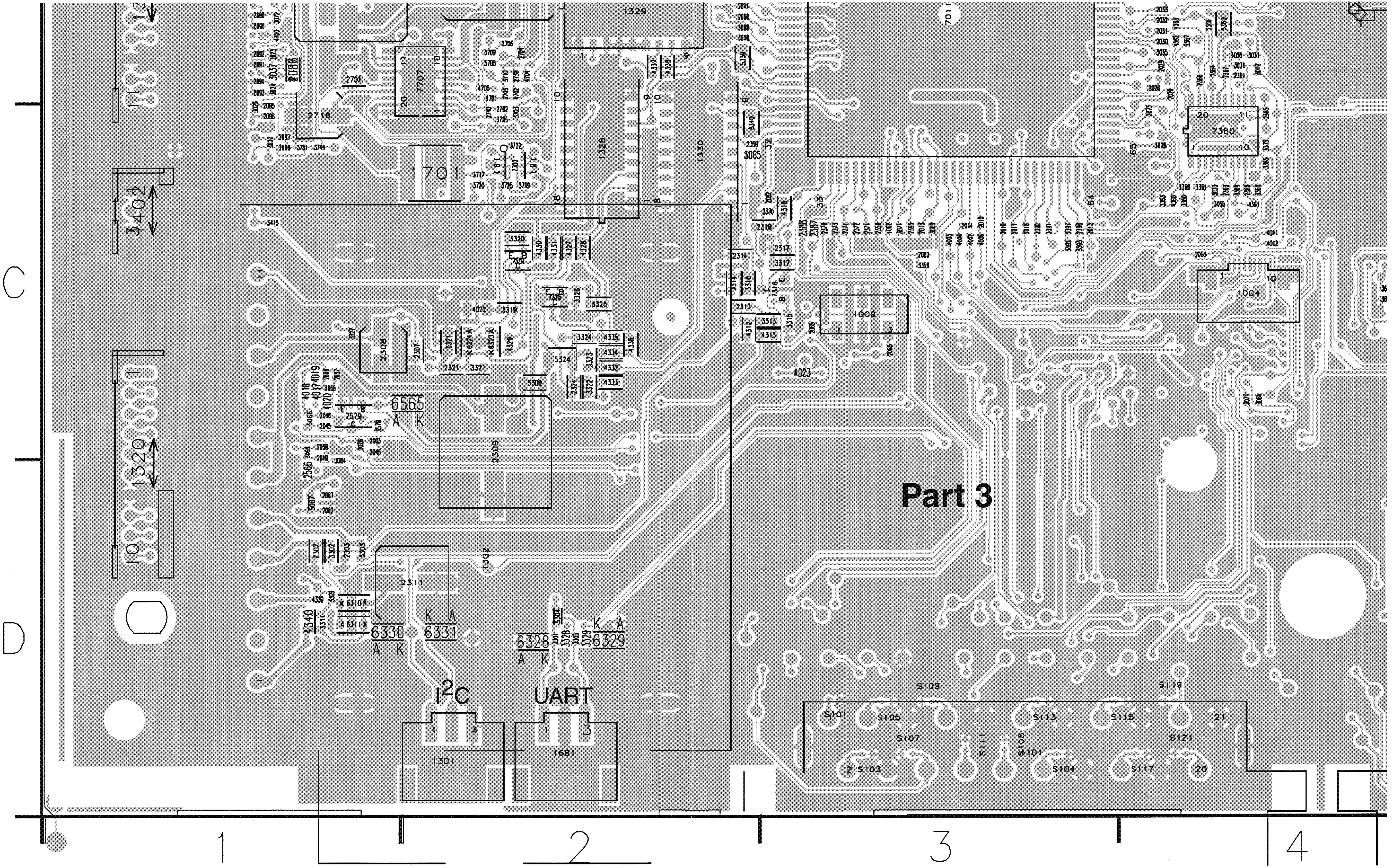
E_14710_035a.eps
171104

Layout Small Signal Panel (Bottom Side Part 2)


4
5
6
7
A
B
Part 2
1251
11
1
3251
2886
1951
GND
7953
IN
OUT
1530
3545
3546
3547
3538
3539
3540
3544
3543
3542
3550
3551
3548
3549
3553
3552
3541
2884
7887
5955
5956
7955
5960
7954
5959
5957
5258
5259
5257
5251
5252
2254
2253
6270
6259
7992
GND
6262
NC
CONTROL
7260
5994
2993
2526
3503
3502
2517
3501
1408
4888
2872
4872
4871
5872
7872
3418
7416
3440
3439
3438
5991
5990
5989
3423
6021
7004
2056
2055
3098
7531
5998
1532
VCC
VOUT
7532
MR
SUB GND
5984
5997
5986
5988
5987
5985
3444
3417
4428
4427
4445
4444
4446
1409
2505
2506
2504
2507
2508
2509
2510
2511
2512
2515
2514
2516
2503
2131
2130
2129
2128
2127
2462
2409
2408
2110
2111
2112
2413
2471
2472
2473
2474
2475
2476
2477
2469
2468
2440
2441
2446
2419
2449
3428
3429
3433
3432
3425
2105

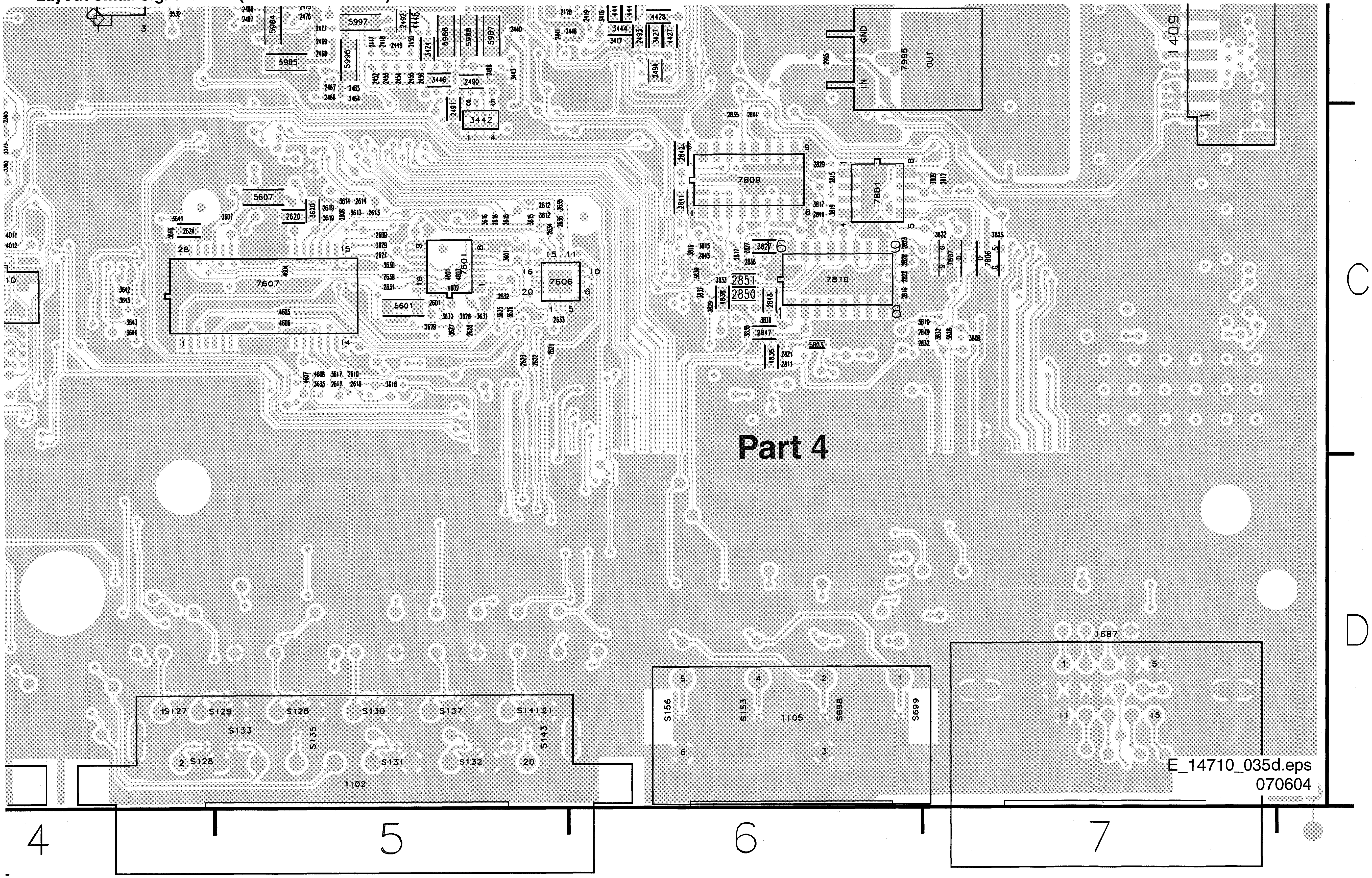
E_14710_035b.eps
070604

Layout Small Signal Panel (Bottom Side Part 3)


Part 3
I2C
UART
C
D
1
2
3
4
1301
1681
1320
3402
1701
7707
2716
2701
1329
1328
1330
7011
7360
1004
1009
2308
2309
2311
1302
4023
6565
6330
6331
6328
6329
4340
S101
S103
S104
S105
S106
S107
S109
S111
S113
S115
S117
S119
S121
20
21

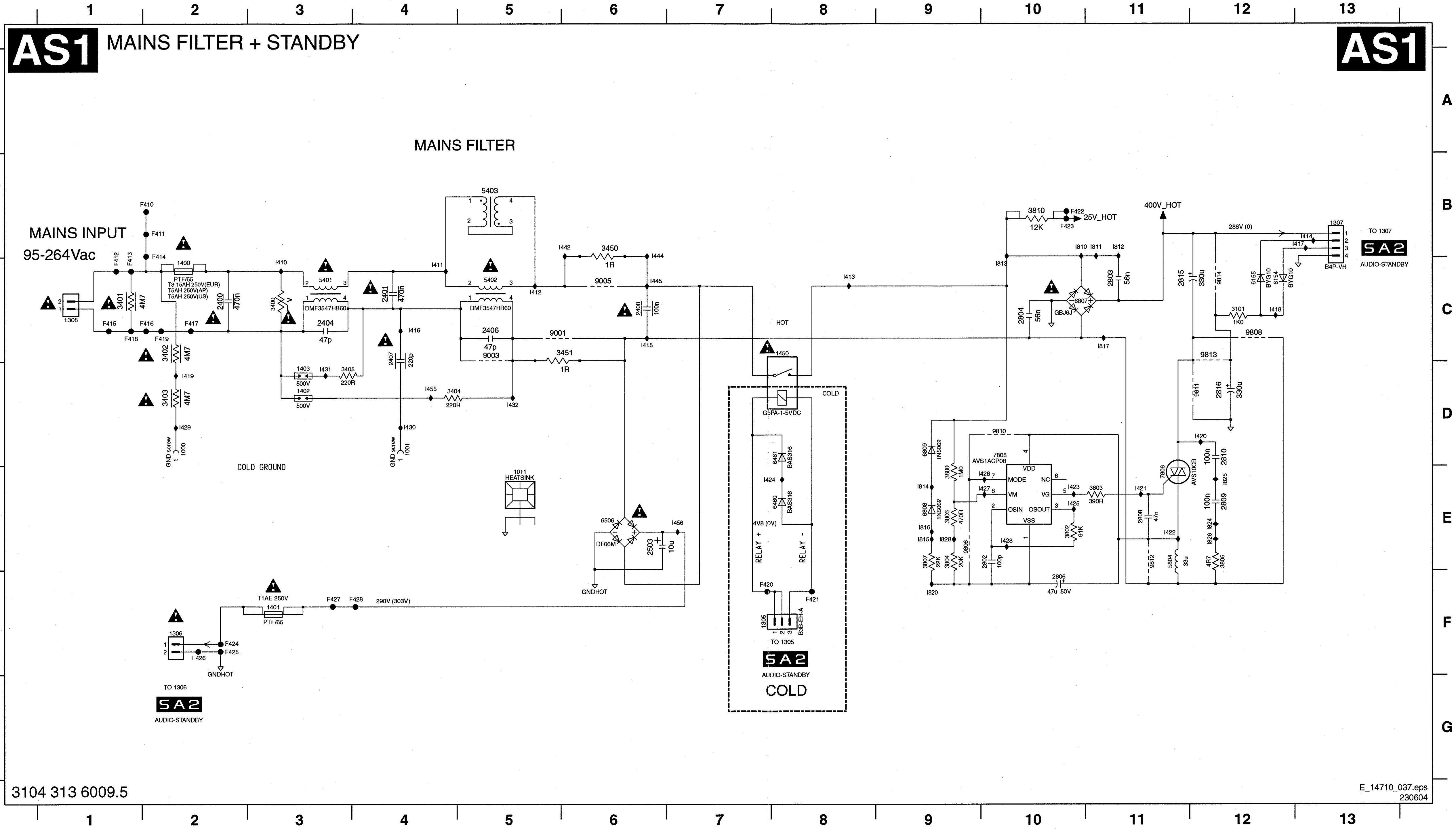
E_14710_035c.eps
271204

Layout Small Signal Panel (Bottom Side Part 4)


Part 4
7607
7606
7601
7809
7801
7810
7995
1409
1102
1105
1687
5607
5601
5984
5985
5986
5988
5987
5996
5997
3442
3444
4428
2851
2850
C
D
4
5
6
7

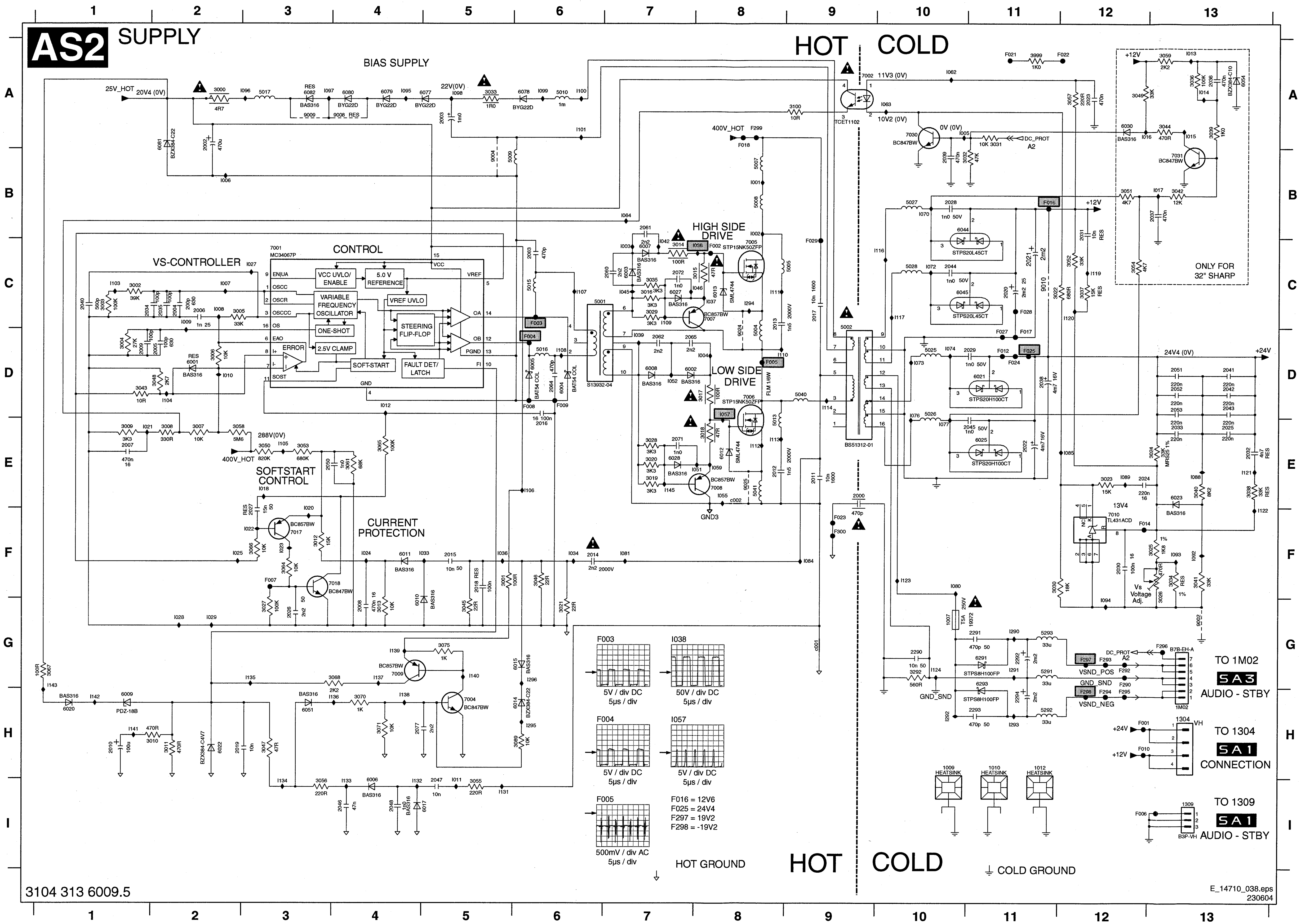
E_14710_035d.eps
070604

PSU (30-32”): Mains Filter and Standby


AS1
MAINS FILTER + STANDBY
AS1
MAINS FILTER
MAINS INPUT
95-264Vac
1308
F410
F411
F414
F412
F413
1400
PTF/65
T3.15AH 250V(EUR)
T5AH 250V(AP)
T5AH 250V(US)
3401
4M7
F415
F416
F417
F418
F419
2400
470n
3402
4M7
I419
3403
4M7
I429
GND screw
1000
COLD GROUND
I410
3400
5401
DMF3547HB60
2404
47p
1403
500V
I431
3405
220R
1402
500V
2401
470n
I416
2407
220p
I455
3404
220R
I430
GND screw
1001
I411
5403
5402
DMF3547HB60
I412
2406
47p
9003
9001
3451
1R
I432
I442
3450
1R
I444
9005
I445
2408
100n
I415
1011
HEATSINK
6506
DF06M
I456
2503
10u
GNDHOT
T1AE 250V
1401
PTF/65
F427
F428
290V (303V)
1306
F424
F425
F426
GNDHOT
TO 1306
SA2
AUDIO-STANDBY
HOT
1450
COLD
G5PA-1-5VDC
6461
BAS316
I424
6460
BAS316
4V8 (0V)
RELAY +
RELAY -
F420
F421
1305
B3B-EH-A
TO 1305
SA2
AUDIO-STANDBY
COLD
I413
3810
12K
F422
F423
25V_HOT
I813
I810
I811
I812
2803
56n
6807
GBJ6J
2804
56n
I817
400V_HOT
288V (0)
2815
330u
9814
6155
BYG10
6154
BYG10
3101
1K0
I418
I414
I417
1307
B4P-VH
TO 1307
SA2
AUDIO-STANDBY
9808
9813
9811
2816
330u
6809
1N5062
I814
6808
1N5062
I816
I815
3807
22K
I820
3800
1M0
3806
470R
I828
3804
20K
9806
9810
7805
AVS1ACP08
VDD
MODE
NC
VM
VG
OSIN
OSOUT
VSS
I426
I427
I423
I425
I428
3803
390R
3802
91K
2802
100p
2806
47u 50V
I421
2808
47n
9812
I422
5804
33u
7806
AVS10CB
I420
2810
100n
I825
2809
100n
I824
I826
3805
4R7
3104 313 6009.5
E_14710_037.eps
230604

1000	D2
1001	D4
1011	E5
1305	F7
1306	F2
1307	B13
1308	C1
1400	C2
1401	F3
1402	D3
1403	D3
1450	C8
2400	C2
2401	C4
2404	C3
2406	C5
2407	C4
2408	C6
2503	E6
2802	E10
2803	C11
2804	C10
2806	F10
2808	E11
2809	E12
2810	D12
2815	C11
2816	D12
3101	C12
3400	C3
3401	C1
3402	C2
3403	D2
3404	D4
3405	D3
3450	B6
3451	C6
3800	E9
3802	E10
3803	E11
3804	E9
3805	E12
3806	E9
3807	E9
3810	B10
5401	C3
5402	C5
5403	B5
5804	E11
6154	C12
6155	C12
6460	E8
6461	D8
6506	E6
6807	C10
6808	E9
6809	D9
7805	D10
7806	E11
9001	C5
9003	C5
9005	C6
9806	E9
9808	C12
9810	D10
9811	D12
9812	E11
9813	C12
9814	C12
F410	B2
F411	B2
F412	C1
F413	C1
F414	C2
F415	C1
F416	C2
F417	C2
F418	C1
F419	C2
F420	F7
F421	F8
F422	B10
F423	B10
F424	F2
F425	F2
F426	F2
F427	F3
F428	F4
I410	C3
I411	C4
I412	C5
I413	C8
I414	B13
I415	C6
I416	C4
I417	B13
I418	C12
I419	D2
I420	D12
I421	E11
I422	E11
I423	E10
I424	E7
I425	E10
I426	E10
I427	E10
I428	E10
I429	D2
I430	D4
I431	D3
I432	D5
I442	B6
I444	B6
I445	C6
I455	D4
I456	E7
I810	B10
I811	B11
I812	B11
I813	C10
I814	E9
I815	E9
I816	E9
I817	C11
I820	F9
I824	E12
I825	E12
I826	E12
I828	E9

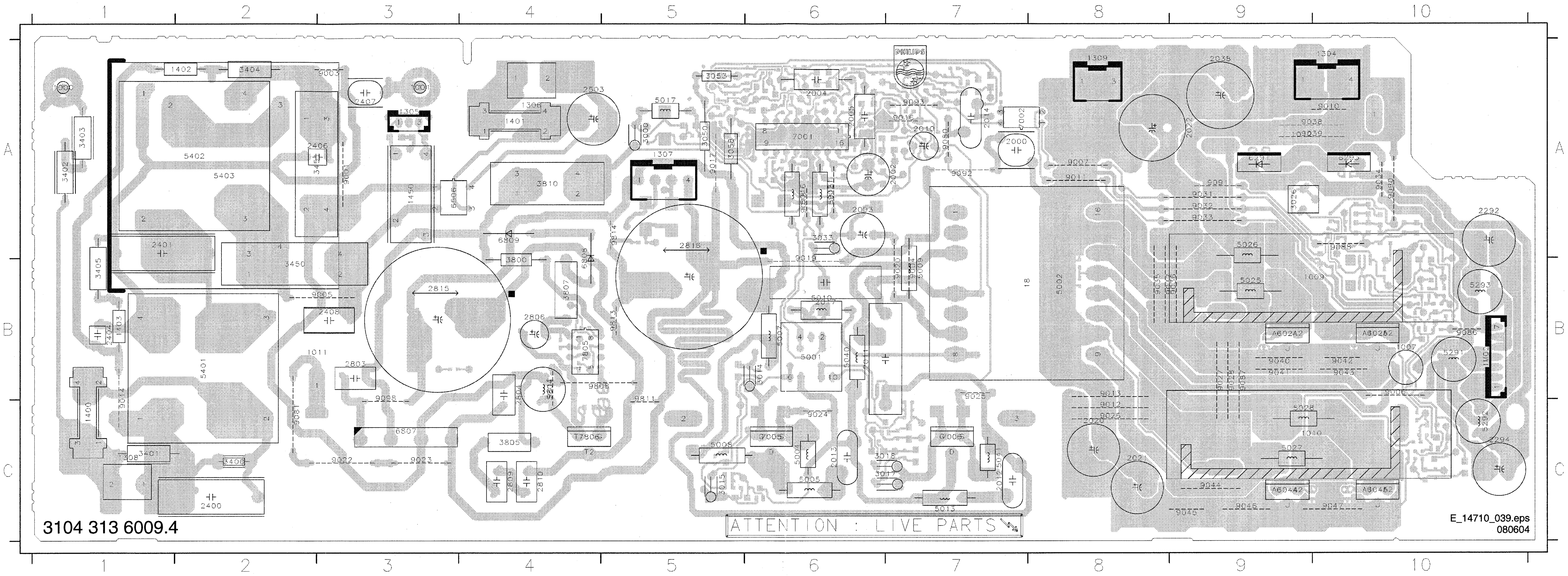
PSU (30-32"): Supply


AS2 SUPPLY
BIAS SUPPLY
HOT
COLD
25V_HOT
20V4 (0V)
22V(0V)
11V3 (0V)
10V2 (0V)
0V (0V)
DC_PROT A2
400V_HOT
CONTROL
VS-CONTROLLER
7001 MC34067P
VCC UVLO/ ENABLE
5.0 V REFERENCE
VARIABLE FREQUENCY OSCILLATOR
VREF UVLO
STEERING FLIP-FLOP
ONE-SHOT
ERROR
2.5V CLAMP
SOFT-START
FAULT DET/ LATCH
HIGH SIDE DRIVE
LOW SIDE DRIVE
STP15NK50ZFP
S13932-04
BS51312-01
TCET1102
288V(0V)
SOFTSTART CONTROL
CURRENT PROTECTION
GND3
STPS20L45CT
STPS20H100CT
STPS8H100FP
+12V
24V4 (0V)
+24V
13V4
TL431ACD
Vs Voltage Adj.
ONLY FOR 32" SHARP
TO 1M02
SA3
AUDIO - STBY
VSND_POS
VSND_NEG
GND_SND
TO 1304
SA1
CONNECTION
TO 1309
SA1
AUDIO - STBY
1009 HEATSINK
1010 HEATSINK
1012 HEATSINK
F003 5V / div DC 5µs / div
I038 50V / div DC 5µs / div
F004 5V / div DC 5µs / div
I057 5V / div DC 5µs / div
F005 500mV / div AC 5µs / div
F016 = 12V6
F025 = 24V4
F297 = 19V2
F298 = -19V2
HOT GROUND
COLD GROUND
3104 313 6009.5
E_14710_038.eps
230604
1 2 3 4 5 6 7 8 9 10 11 12 13
A B C D E F G H I

1007	G10
1009	H10
1010	H11
1012	H11
1304	H13
1309	I13
1M02	H13
2000	E9
2002	A2
2003	A5
2004	C2
2005	D2
2006	C2
2007	E1
2008	G4
2009	D1
2010	H1
2011	E9
2012	E8
2013	C8
2014	F6
2015	F5
2016	E6
2017	C9
2018	F5
2019	H2
2020	C11
2021	C11
2022	E11
2023	A12
2024	E12
2025	E13
2026	G3
2027	F3
2028	B10
2029	D11
2030	F12
2031	B12
2032	E13
2033	E13
2034	C1
2035	C2
2036	A13
2037	B13
2038	D11
2039	B10
2040	C1
2041	D13
2042	D13
2043	D13
2044	C10
2045	E11
2046	I4
2047	I5
2048	I4
2050	E3
2051	D13
2052	D13
2053	D13
2060	C7
2061	B7
2062	D7
2063	C6
2064	D6
2065	D7
2071	E7
2072	C7
2077	H4
2290	G10
2291	G11
2292	G11
2293	H11
2294	H11
3000	A2
3001	F5
3002	C1
3003	C1
3004	D1
3005	C2
3006	D2
3007	E2
3008	E2
3009	E1
3010	H2
3011	H2
3012	F3
3013	G4
3014	C7
3015	C8
3016	C7
3017	D8
3018	E8
3019	E7
3020	E7
3021	G6
3022	C11
3023	E12
3024	E13
3025	F13
3026	G13
3027	G3
3028	E7
3029	C7
3030	F11
3031	A11
3032	B10
3033	A5
3034	F13
3035	C7
3036	A13
3037	C12
3038	E13
3039	A13
3040	E13
3041	F13
3042	B13
3043	D1
3044	A13
3045	G5
3046	F6
3047	H3
3048	D2
3049	A12
3050	E3
3051	B12
3052	C12
3053	E3
3054	C12
3055	I5
3056	I3
3057	A12
3058	E2
3059	A13
3061	E4
3064	F3
3065	E4
3066	F3
3067	G1
3068	G4
3070	H4
3071	H4
3075	G5
3089	H6
3100	A9
3292	G10
3999	A11
5001	C6
5002	D9
5004	D8
5005	C9
5007	B8
5008	B8
5009	B5
5010	A6
5013	E8
5015	C6
5016	D6
5017	A3
5025	D10
5026	D10
5027	B10
5028	C10
5040	D9
5041	E8
5291	G11
5292	H11
5293	G11
6001	D2
6002	D7
6003	C7
6004	D6
6005	D6
6006	I4
6007	C7
6008	D7
6009	H1
6010	G4
6011	F4
6012	E8
6013	C8
6014	H6
6015	G6
6017	I5
6020	H1
6021	D11
6022	H2
6023	E13
6025	E11
6027	C7
6028	E7
6030	A12
6044	B10
6045	C10
6051	H3
6054	A13
6077	A5
6078	A6
6079	A4
6080	A4
6081	A2
6082	A3
6291	G11
6293	G11
7001	C3
7002	A9
7004	H5
7005	C8
7006	D8
7007	C8
7008	E8
7009	G4
7010	F12
7017	F3
7018	F3
7030	A10
7031	B13
9002	G13
9004	B5
9008	A4
9009	A3
9010	C11
9024	D8
9025	E8
F001	H12
F002	C8
F003	C6
F004	D6
F005	D8
F006	I12
F007	F3
F008	D6
F009	D6
F010	H12
F012	D11
F014	F12
F016	B11
F017	D11
F018	A8
F021	A11
F022	A12
F023	F9
F024	D11
F025	D11
F027	D11
F028	C11
F029	C9
F290	G12
F292	G12
F293	G12
F294	H12
F295	H12
F296	G13
F297	G12
F298	H12
F299	A8
F300	F9
I001	B8
I002	B8
I003	C7
I004	D8
I005	A10
I006	B2
I007	C2
I008	C2
I009	C2
I010	D2
I011	I5
I012	D4
I013	A13
I014	A13
I015	A13
I016	A12
I017	B13
I018	E3
I020	F3
I021	E1
I022	F3
I023	F3
I024	F4
I025	F2
I027	C3
I028	G2
I029	G2
I033	F5
I034	F6
I036	F5
I037	C8
I038	C8
I039	D7
I042	C7
I045	C7
I046	C8
I051	E8
I052	D7
I055	E8
I057	D8
I059	E8
I062	A10
I063	A10
I064	B7
I070	B10
I072	C10
I073	D10
I074	D10
I076	D10
I077	E10
I080	F10
I081	F7
I084	F9
I085	E12
I088	E13
I089	E12
I092	F13
I093	F13
I094	G12
I095	A4
I096	A3
I097	A3
I098	A5
I099	A6
I100	A6
I101	A6
I103	C1
I104	D2
I105	E3
I106	E6
I107	C6
I108	D6
I109	C7
I110	D8
I111	C8
I112	E8
I113	E8
I114	D9
I116	C10
I117	C10
I119	C12
I120	C12
I121	E13
I122	F13
I123	F10
I124	G10
I131	I5
I132	I4
I133	I4
I134	I3
I135	G3
I136	H4
I137	G4
I138	H4
I139	G4
I140	G5
I141	H1
I142	H1
I143	G1
I145	E7
I290	G11
I291	G11
I292	H10
I293	H11
I294	C8
I295	H6
I296	G6
c001	G9
c002	E8

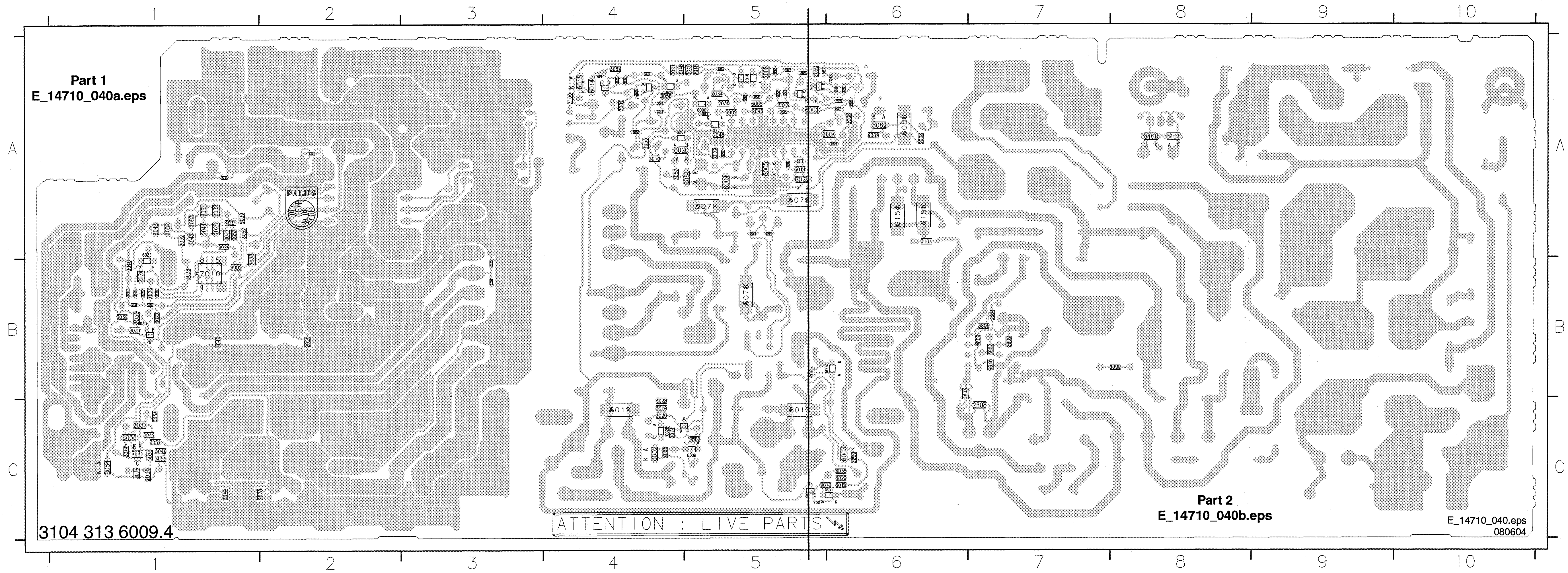
Layout PSU (30-32”) (Top Side)

1000	A1
1001	A3
1007	B10
1009	B9
1010	C9
1011	C3
1012	A9
1304	A10
1305	A3
1306	A4
1307	A5
1308	C1
1309	A8
1400	C1
1401	A4
1402	A2
1403	B1
1450	A3
1M02	B10
2000	A7
2002	A7
2003	A6
2004	A6
2005	A6
2010	A7
2011	B7
2012	C7
2013	C6
2014	A7
2017	B6
2020	C8
2021	C8
2022	A8
2038	A9
2292	A10
2294	C10
2400	C2
2401	B1
2404	B1
2406	A3
2407	A3
2408	B3
2503	A4
2803	B3
2804	B4
2806	B4
2809	C4
2810	C4
2815	A3
2816	A5
3000	A5
3014	B6
3015	C5
3017	C7
3018	C7
3026	A9
3033	A6
3050	A5
3053	A5
3058	A5
3400	C2
3401	C2
3402	A1
3403	A1
3404	A2
3405	B1
3450	A2
3451	A3
3800	A4
3805	C4
3807	B4
3810	A4
5001	B6
5002	A7
5004	C6
5005	C6
5007	B6
5008	C5
5009	B7
5010	B6
5013	C7
5015	A6
5016	A6
5017	A5
5025	B9
5026	A9
5027	C9
5028	C9
5040	B6
5041	C7
5291	B10
5292	C10
5293	B10
5401	B2
5402	A1
5403	A3
5804	B4
6021	B9
6025	B10
6044	C10
6045	C10
6291	A9
6293	A10
6506	A4
6807	C3
6808	A4
6809	A4
7001	A6
7002	A8
7005	C6
7006	C7
7805	B4
7806	C4
9001	A3
9003	A3
9004	A7
9005	B3
9006	C10
9007	A8
9010	A10
9011	A8
9012	C8
9013	B8
9014	B1
9016	A7
9017	A5
9018	A6
9019	A6
9020	B7
9021	A6
9022	C3
9023	C3
9024	C6
9025	B7
9026	C8
9027	B9
9028	B9
9031	A9
9032	A9
9033	A9
9034	A10
9035	B8
9036	B9
9037	B8
9038	A9
9039	A9
9040	B9
9041	B9
9042	B10
9043	B10
9044	C9
9045	C9
9046	C9
9047	C10
9080	A7
9081	C2
9086	B10
9087	B9
9088	A10
9090	A10
9091	A9
9092	A7
9093	A7
9098	B3
9808	B5
9811	B5
9812	B4
9813	B5
9814	A5

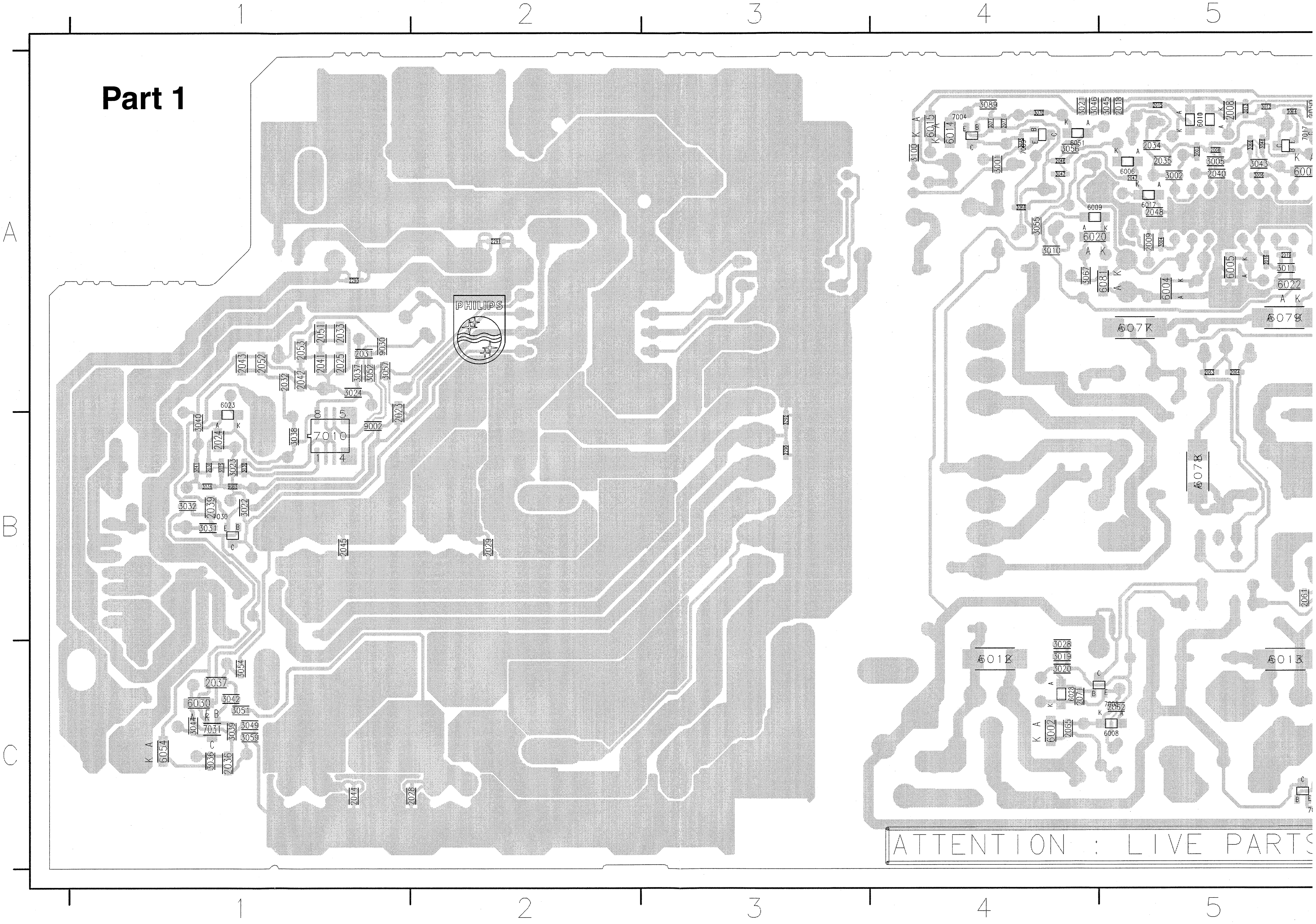


Layout PSU (30-32") (Overview Bottom Side)

2006	A5
2007	A6
2008	A5
2009	A5
2015	A5
2016	A5
2018	A5
2019	A5
2023	B1
2024	B1
2025	A1
2026	A6
2027	A6
2028	C2
2029	B2
2030	B1
2031	A1
2032	A1
2033	A1
2034	A5
2035	A5
2036	C1
2037	C1
2039	B1
2040	A5
2041	A1
2042	A1
2043	A1
2044	C1
2045	B1
2046	A4
2047	A5
2048	A5
2050	A5
2051	A1
2052	A1
2053	A1
2060	C6
2061	B5
2062	C5
2063	A5
2064	A5
2065	C4
2071	C4
2072	C5
2077	A4
2290	B3
2291	A2
2293	A1
2802	B7
2808	C7
3001	A4
3002	A5
3003	A5
3004	A5
3005	A5
3006	A5
3007	A6
3008	A6
3009	A6
3010	A4
3011	A5
3012	A5
3013	A5
3016	C6
3019	C4
3020	C4
3021	A4
3022	B1
3023	B1
3024	A1
3025	B1
3027	A6
3028	C4
3029	C6
3030	B1
3031	B1
3032	B1
3034	B1
3035	C6
3036	C1
3037	A1
3038	B1
3039	C1
3040	B1
3041	B1
3042	C1
3043	A5
3044	C1
3045	A5
3046	A4
3047	A4
3048	A5
3049	C1
3051	C1
3052	A1
3054	C1
3055	A4
3056	A4
3057	A1
3059	C1
3061	A5
3064	A5
3065	A6
3066	A5
3067	A4
3068	A4
3070	A4
3071	A4
3075	A4
3089	A4
3100	A4
3101	A6
3292	B3
3802	B7
3803	B6
3804	B7
3806	B7
3999	B8
6001	A5
6002	C4
6003	C6
6004	A5
6005	A5
6006	A5
6007	B6
6008	C5
6009	A4
6010	A5
6011	A5
6012	B4
6013	C5
6014	A4
6015	A4
6017	A5
6020	A4
6022	A5
6023	A1
6027	C6
6028	C4
6030	C1
6051	A4
6054	C1
6077	A5
6078	B5
6079	A5
6080	A6
6081	A4
6082	A6
6154	A6
6155	A6
6460	A8
6461	A8
7004	A4
7007	C5
7008	C5
7009	A4
7010	A1
7017	A5
7018	A6
7030	B1
7031	C1
9002	B1
9008	A6
9009	A6
9030	A1
9085	B1
9806	B7
9810	B7

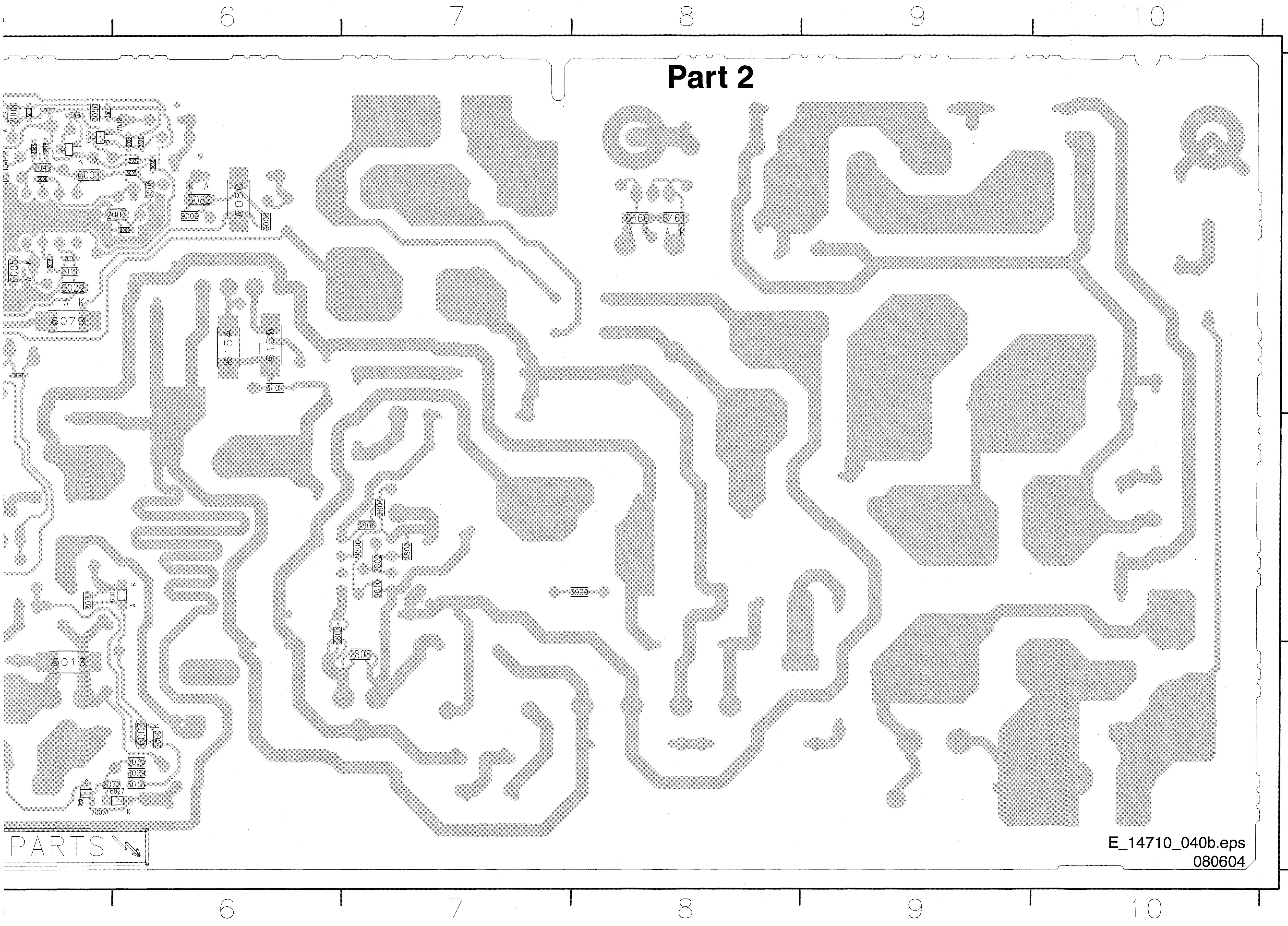

1
2
3
4
5
6
7
8
9
10
A
B
C
Part 1
E_14710_040a.eps
PHILIPS
7010
6078
6079
6012
6013
6080
6154
6155
6460
6461
ATTENTION : LIVE PARTS
3104 313 6009.4
Part 2
E_14710_040b.eps
E_14710_040.eps
080604

Layout PSU (30-32") (Part 1 Bottom Side)

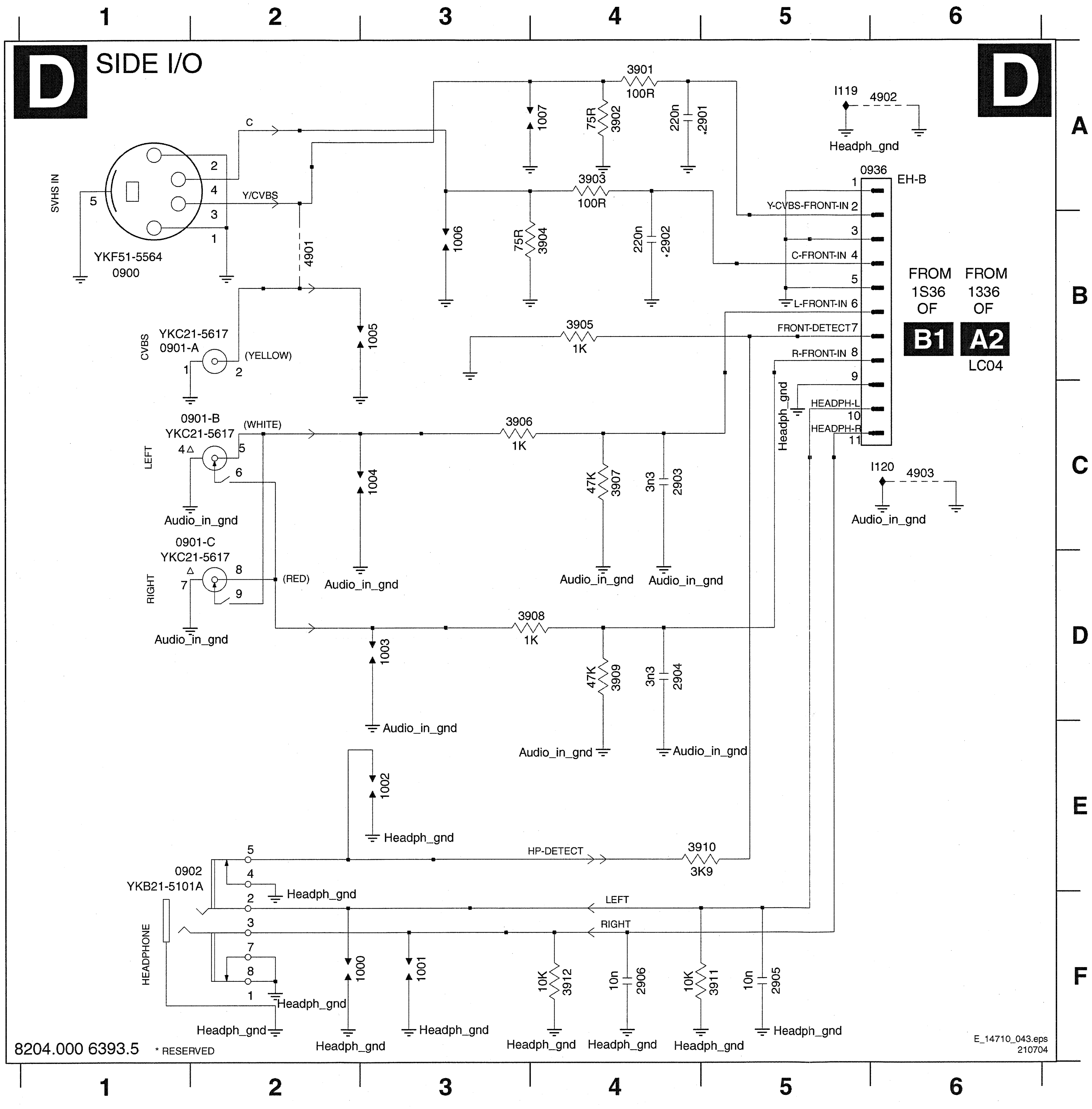

1
2
3
4
5
A
B
C
Part 1
PHILIPS
7010
6023
3040
2024
3038
9002
2023
3024
2043
2052
2032
2042
2053
2041
2051
2025
2033
2031
3037
3052
3057
9030
3032
2039
3022
3031
2045
2029
2037
3054
3042
6030
3051
7031
3049
3059
3044
3036
2036
6054
2044
2028
3089
7004
6015
6014
3100
3001
6051
3056
3021
3046
3045
2018
2034
2035
6006
3002
6017
2048
3005
2040
3043
6010
2008
6009
6020
3010
3055
2009
3067
6081
6004
6005
3011
6022
6071
6079
6078
2061
6012
3028
3019
3020
6028
2071
7003
2062
6008
6002
2065
6013
ATTENTION : LIVE PARTS

E_14710_040a.eps
080604

Layout PSU (30-32") (Part 2 Bottom Side)

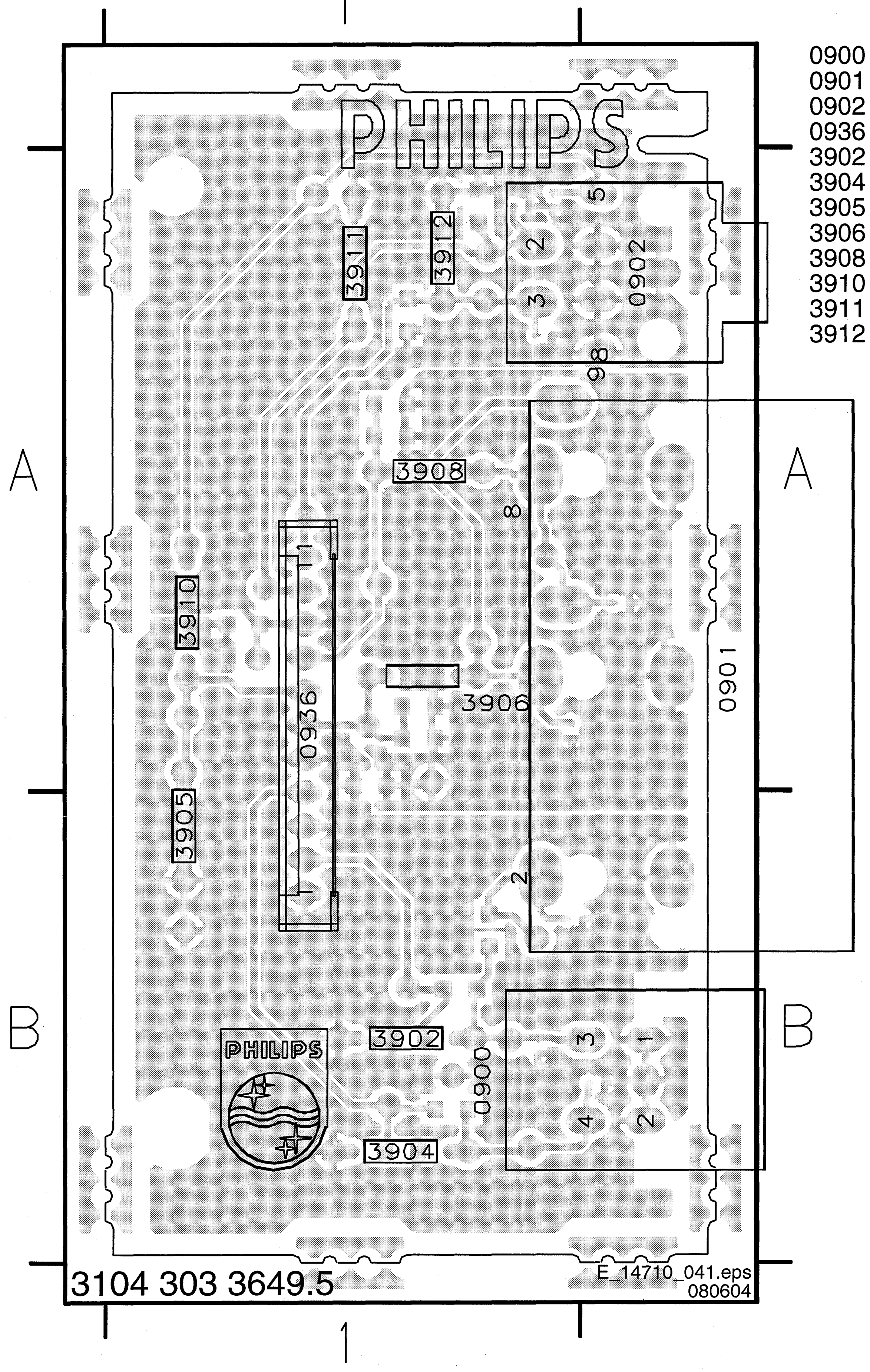

Part 2
6
7
8
9
10
A
B
C
2008
2050
3043
6001
3008
6082
6080
9009
9008
2007
6005
3011
6022
6079
6154
6155
3101
6460
6461
3806
3804
9806
3802
2802
9810
3803
2808
3999
2061
6007
6013
6003
2060
3035
3029
3016
2072
6027
7007
PARTS
E_14710_040b.eps
080604

Side I/O Panel


1
2
3
4
5
6
D
SIDE I/O
D
A
B
C
D
E
F
3901
100R
1007
75R
3902
220n
2901
I119
4902
Headph_gnd
C
Y/CVBS
SVHS IN
5
2
4
3
1
YKF51-5564
0900
4901
3903
100R
1006
75R
3904
220n
2902
0936
EH-B
1
Y-CVBS-FRONT-IN 2
3
C-FRONT-IN 4
5
L-FRONT-IN 6
FRONT-DETECT 7
R-FRONT-IN 8
9
HEADPH-L 10
HEADPH-R 11
FROM
1S36
OF
B1
FROM
1336
OF
A2
LC04
3905
1K
CVBS
YKC21-5617
0901-A
(YELLOW)
1005
0901-B
YKC21-5617
(WHITE)
LEFT
3906
1K
1004
47K
3907
3n3
2903
Audio_in_gnd
I120
4903
0901-C
YKC21-5617
RIGHT
(RED)
3908
1K
1003
47K
3909
3n3
2904
1002
Headph_gnd
HP-DETECT
3910
3K9
0902
YKB21-5101A
HEADPHONE
LEFT
RIGHT
1000
1001
10K
3912
10n
2906
10K
3911
10n
2905
8204.000 6393.5
* RESERVED
E_14710_043.eps
210704

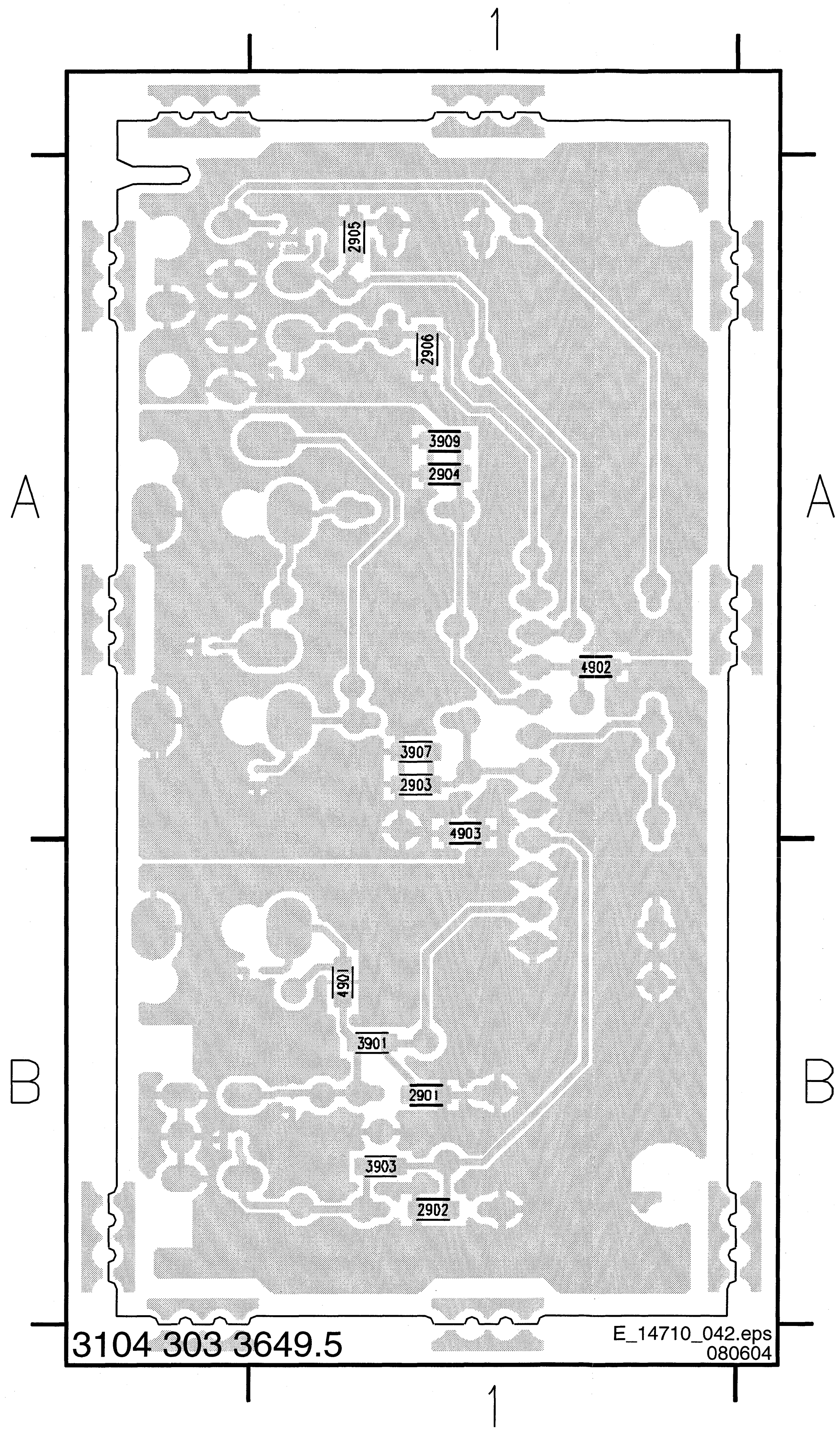
0900-A	B1
0901-A	B1
0901-B	C2
0901-C	C2
0902	E2
0936	A5
1000	F2
1001	F3
1002	E3
1003	D3
1004	C3
1005	B3
1006	B3
1007	A4
2901	A4
2902	B4
2903	C4
2904	D4
2905	F5
2906	F4
3901	A4
3902	A4
3903	A4
3904	B4
3905	B4
3906	C3
3907	C4
3908	D4
3909	D4
3910	E5
3911	F5
3912	F4
4901	B2
4902	A6
4903	C6

Layout Side I/O Panel (Top Side)


1
A
B
PHILIPS
3911
3912
2
3
5
0902
98
3908
8
3910
0936
3906
0901
3905
2
3902
0900
3
1
4
2
3904
PHILIPS
3104 303 3649.5
E_14710_041.eps
080604

0900	B1
0901	A1
0902	A1
0936	A1
3902	B1
3904	B1
3905	B1
3906	A1
3908	A1
3910	A1
3911	A1
3912	A1

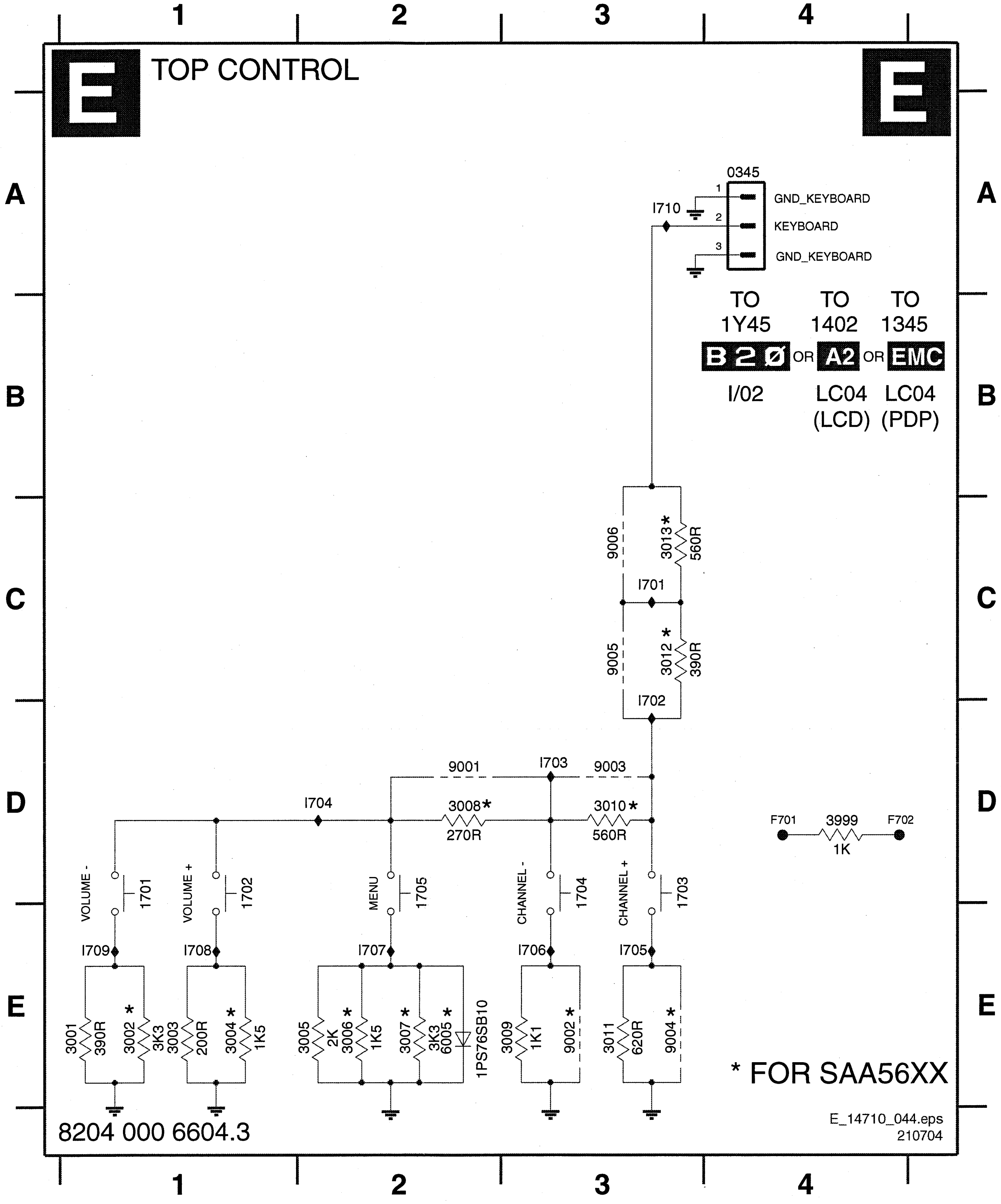
Layout Side I/O Panel (Bottom Side)


1
A
B
2905
2906
3909
2904
4902
3907
2903
4903
4901
3901
2901
3903
2902
3104 303 3649.5
E_14710_042.eps
080604

0900	B1
0901	A1
0902	A1
0936	A1
2901	B1
2902	B1
2903	A1
2904	A1
2905	A1
2906	A1
3901	B1
3902	B1
3903	B1
3904	B1
3905	B1
3906	A1
3907	A1
3908	A1
3909	A1
3910	A1
3911	A1
3912	A1
4901	B1
4902	A1
4903	A1

Top Control Panel

0345	A4
1701	D1
1702	D1
1703	D3
1704	D3
1705	D2
3001	E1
3002	E1
3003	E1
3004	E1
3005	E2
3006	E2
3007	E2
3008	D2
3009	E3
3010	D3
3011	E3
3012	C3
3013	C3
3999	D4
6005	E2
9001	D2
9002	E3
9003	D3
9004	E3
9005	C3
9006	C3
F701	D4
F702	D4
I701	C3
I702	D3
I703	D3
I704	D2
I705	E3
I706	E3
I707	E2
I708	E1
I709	E1
I710	A3

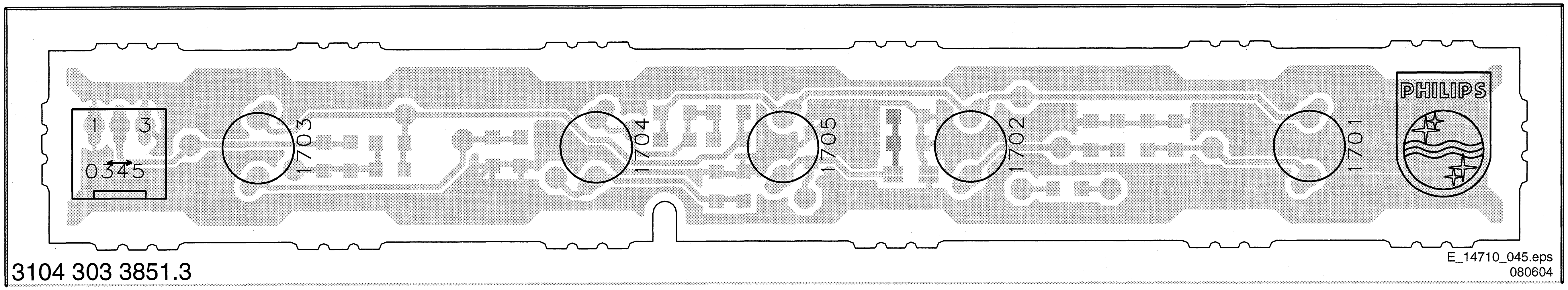

1
2
3
4
A
B
C
D
E
E
TOP CONTROL
E
0345
1
2
3
GND_KEYBOARD
KEYBOARD
GND_KEYBOARD
I710
TO 1Y45
TO 1402
TO 1345
B20
OR
A2
OR
EMC
I/02
LC04 (LCD)
LC04 (PDP)
9006
3013 *
560R
I701
9005
3012 *
390R
I702
9001
I703
9003
I704
3008 *
270R
3010 *
560R
F701
3999
1K
F702
VOLUME -
1701
VOLUME +
1702
MENU
1705
CHANNEL -
1704
CHANNEL +
1703
I709
I708
I707
I706
I705
3001
390R
3002 *
3K3
3003
200R
3004 *
1K5
3005
2K
3006 *
1K5
3007 *
3K3
6005 *
1PS76SB10
3009
1K1
9002 *
3011
620R
9004 *
* FOR SAA56XX
8204 000 6604.3
E_14710_044.eps
210704

Personal Notes:

E_06532_012.eps
131004

Layout Top Control Panel (Top Side)

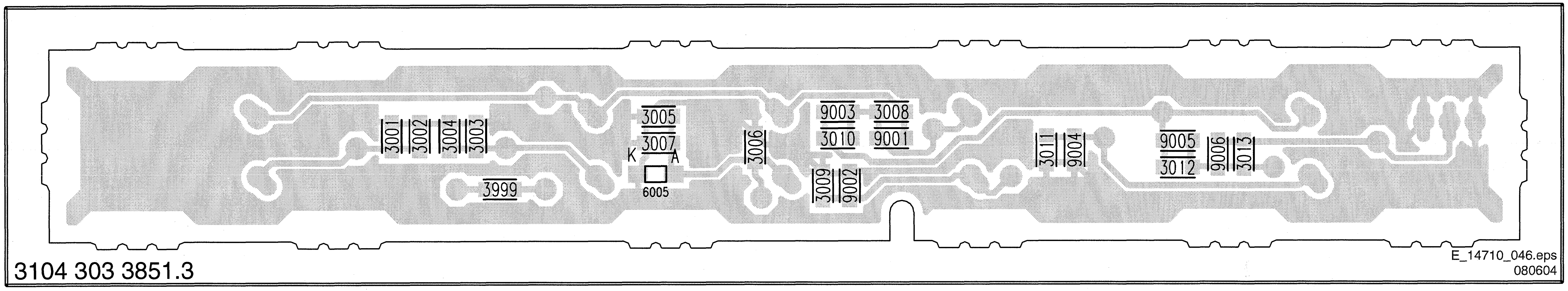
0345 1701 1702 1703 1704 1705


1
3
0345
1703
1704
1705
1702
1701
PHILIPS
3104 303 3851.3

E_14710_045.eps
080604

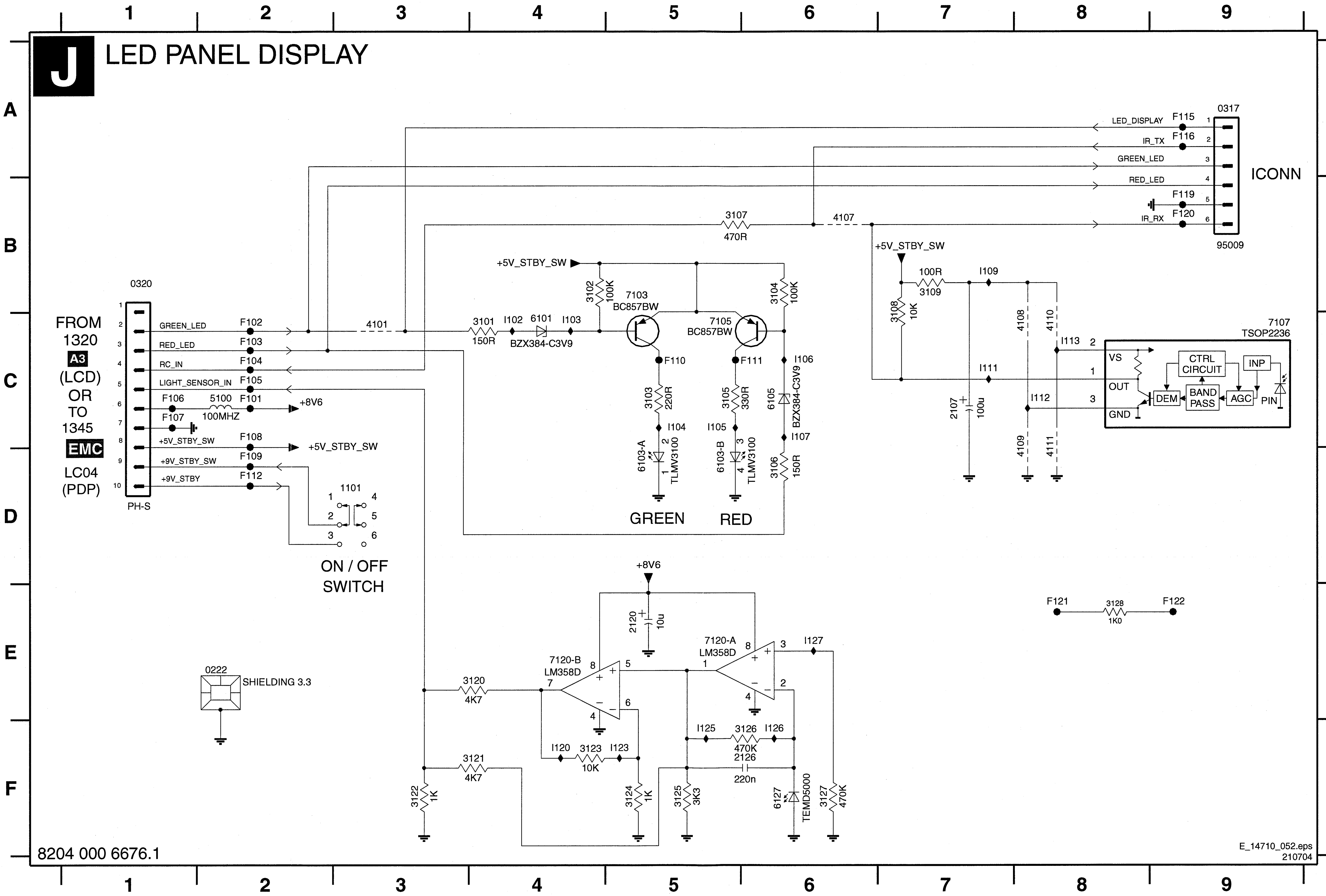
Layout Top Control Panel (Top Side)

3001 3003 3005 3007 3009 3011 3013 6005 9002 9004 9006
3002 3004 3006 3008 3010 3012 3999 9001 9003 9005


3001
3002
3004
3003
3999
3005
3007
K
A
6005
3006
9003
3008
3010
9001
3009
9002
3011
9004
9005
3012
9006
3013
3104 303 3851.3

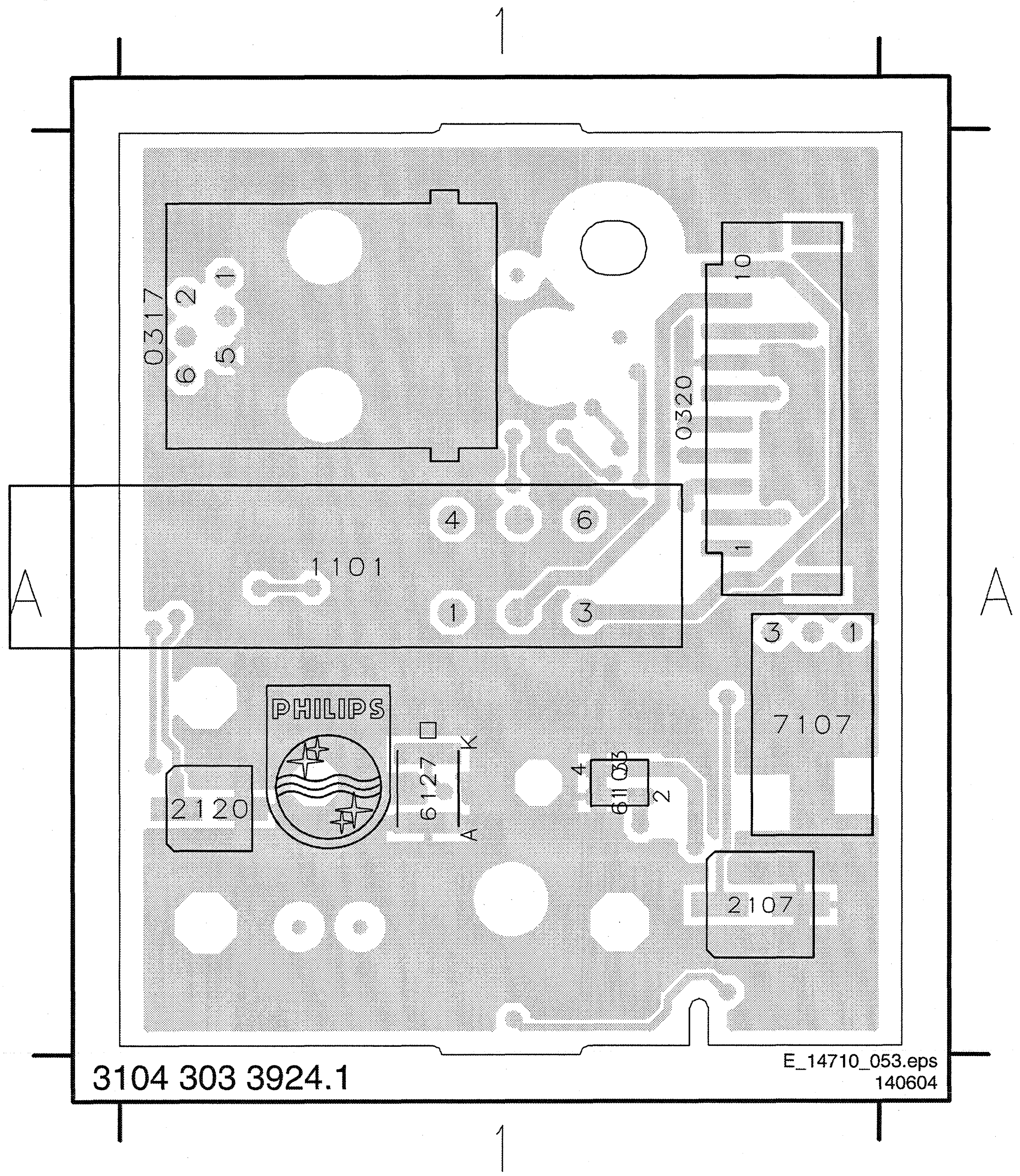
E_14710_046.eps
080604

LED and Switch Panel


1 2 3 4 5 6 7 8 9
A B C D E F
J
LED PANEL DISPLAY
FROM 1320 A3 (LCD) OR TO 1345 EMC LC04 (PDP)
0320
PH-S
GREEN_LED
RED_LED
RC_IN
LIGHT_SENSOR_IN
+5V_STBY_SW
+9V_STBY_SW
+9V_STBY
F101
F102
F103
F104
F105
F106
F107
F108
F109
F112
5100
100MHZ
+8V6
+5V_STBY_SW
4101
1101
ON / OFF SWITCH
3101
150R
I102
6101
I103
BZX384-C3V9
3102
100K
7103
BC857BW
7105
BC857BW
3104
100K
F110
F111
I106
6105
BZX384-C3V9
I107
3103
220R
3105
330R
I104
I105
6103-A
6103-B
TLMV3100
3106
150R
GREEN
RED
3107
470R
4107
LED_DISPLAY
IR_TX
GREEN_LED
RED_LED
IR_RX
F115
F116
F119
F120
0317
ICONN
95009
+5V_STBY_SW
100R
3109
I109
3108
10K
4108
4110
4109
4111
I111
I112
I113
2107
100u
7107
TSOP2236
VS
OUT
GND
CTRL CIRCUIT
INP
DEM
BAND PASS
AGC
PIN
+8V6
2120
10u
7120-B
LM358D
7120-A
LM358D
3120
4K7
3121
4K7
3122
1K
I120
3123
10K
I123
3124
1K
3125
3K3
I125
3126
470K
I126
2126
220n
6127
TEMD5000
I127
3127
470K
0222
SHIELDING 3.3
F121
3128
1K0
F122
8204 000 6676.1
E_14710_052.eps
210704

0222	E2
0317	A9
0320	B1
1101	D3
2107	C7
2120	E5
2126	F6
3101	C4
3102	B4
3103	C5
3104	B6
3105	C5
3106	D6
3107	B5
3108	B7
3109	B7
3120	E4
3121	F4
3122	F3
3123	F4
3124	F5
3125	F5
3126	F6
3127	F6
3128	E8
4101	C3
4107	B6
4108	C8
4109	C8
4110	C8
4111	C8
5100	C2
6101	C4
6103-A	D5
6103-B	D5
6105	C6
6127	F6
7103	B5
7105	C5
7107	C9
7120-A	E5
7120-B	E4
F101	C2
F102	C2
F103	C2
F104	C2
F105	C2
F106	C1
F107	C1
F108	C2
F109	D2
F110	C5
F111	C6
F112	D2
F115	A9
F116	A9
F119	B9
F120	B9
F121	E8
F122	E9
I102	C4
I103	C4
I104	C5
I105	C5
I106	C6
I107	C6
I109	B7
I111	C7
I112	C8
I113	C8
I120	F4
I123	F5
I125	F5
I126	F6
I127	E6

Layout LED and Switch Panel (Top Side)

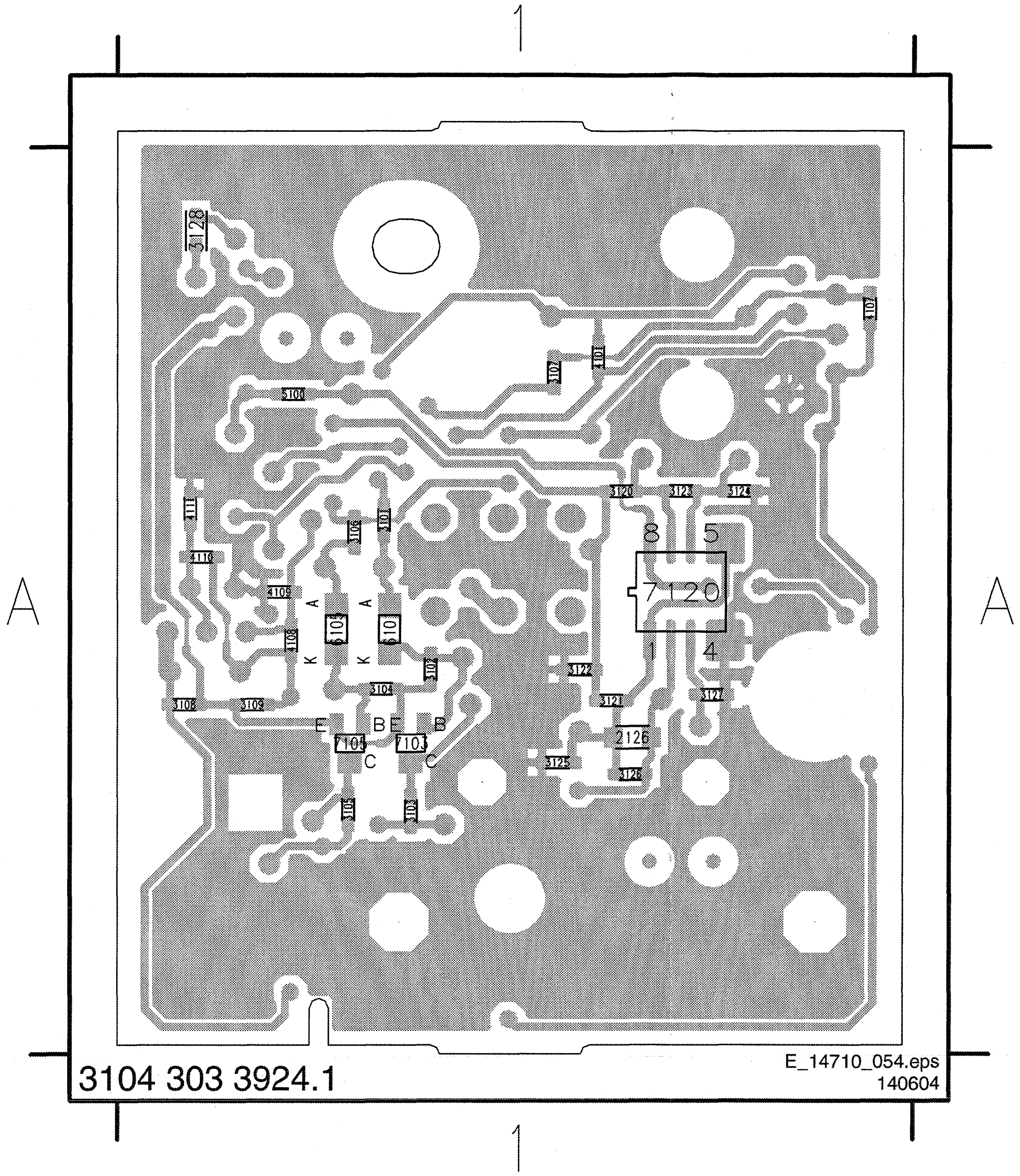

1
A
0317
1
2
5
6
0320
10
1
1101
4
6
1
3
3
1
7107
PHILIPS
2120
6127
K
A
6103
4
2
2107
A
1

3104 303 3924.1

E_14710_053.eps
140604

0317	A1
0320	A1
1101	A1
2107	A1
2120	A1
6103	A1
6127	A1
7107	A1

Layout LED and Switch Panel (Bottom Side)

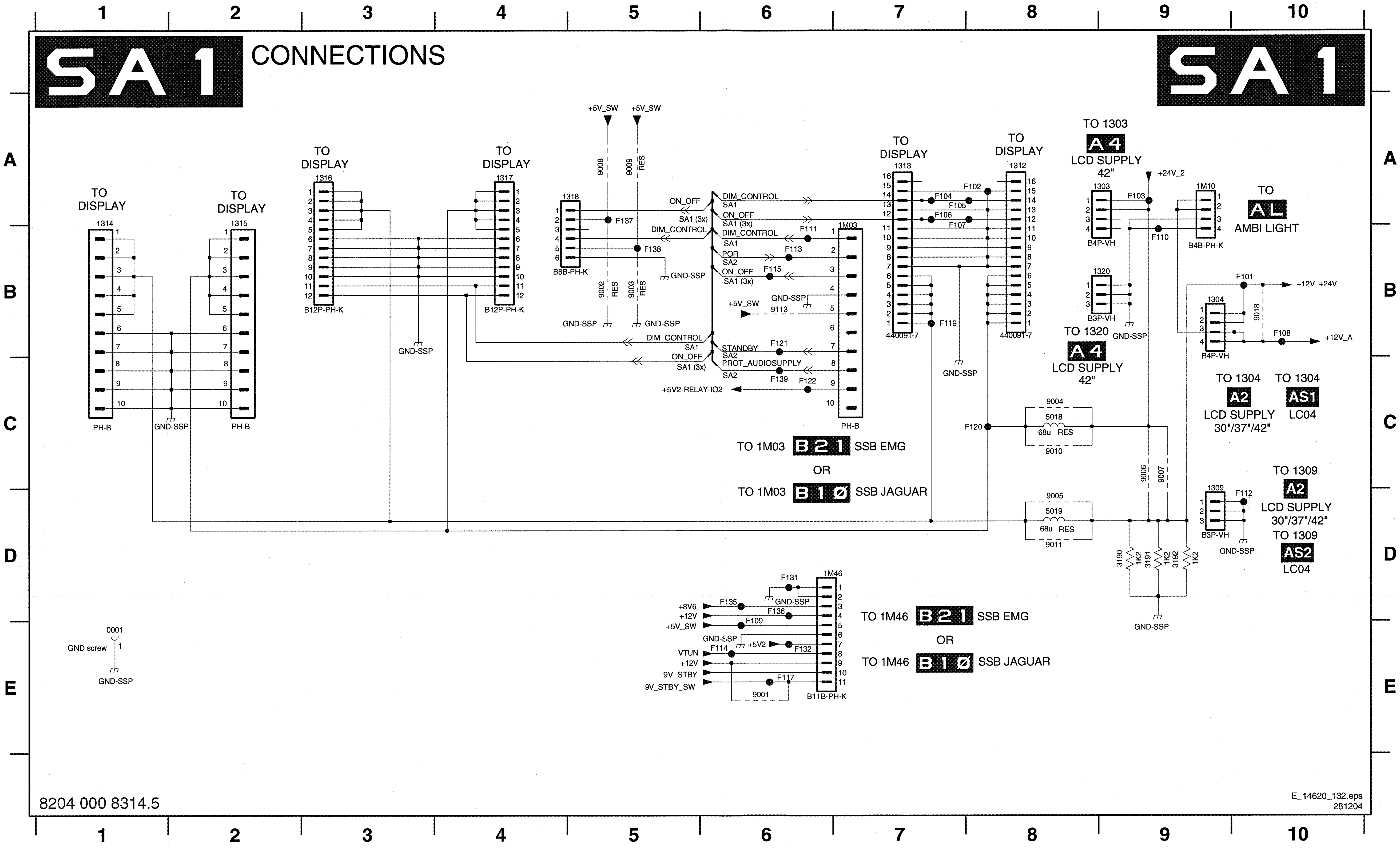

1
A
3128
3107
3101
3102
5100
3120
3123
3124
4111
4110
4109
4108
6105
6101
3106
3101
3105
3108
3109
8
5
7120
1
4
3122
3121
3127
2126
3125
3126
E
B
E
B
7105
7103
C
C
A
K
A
K
A
1

3104 303 3924.1

E_14710_054.eps
140604

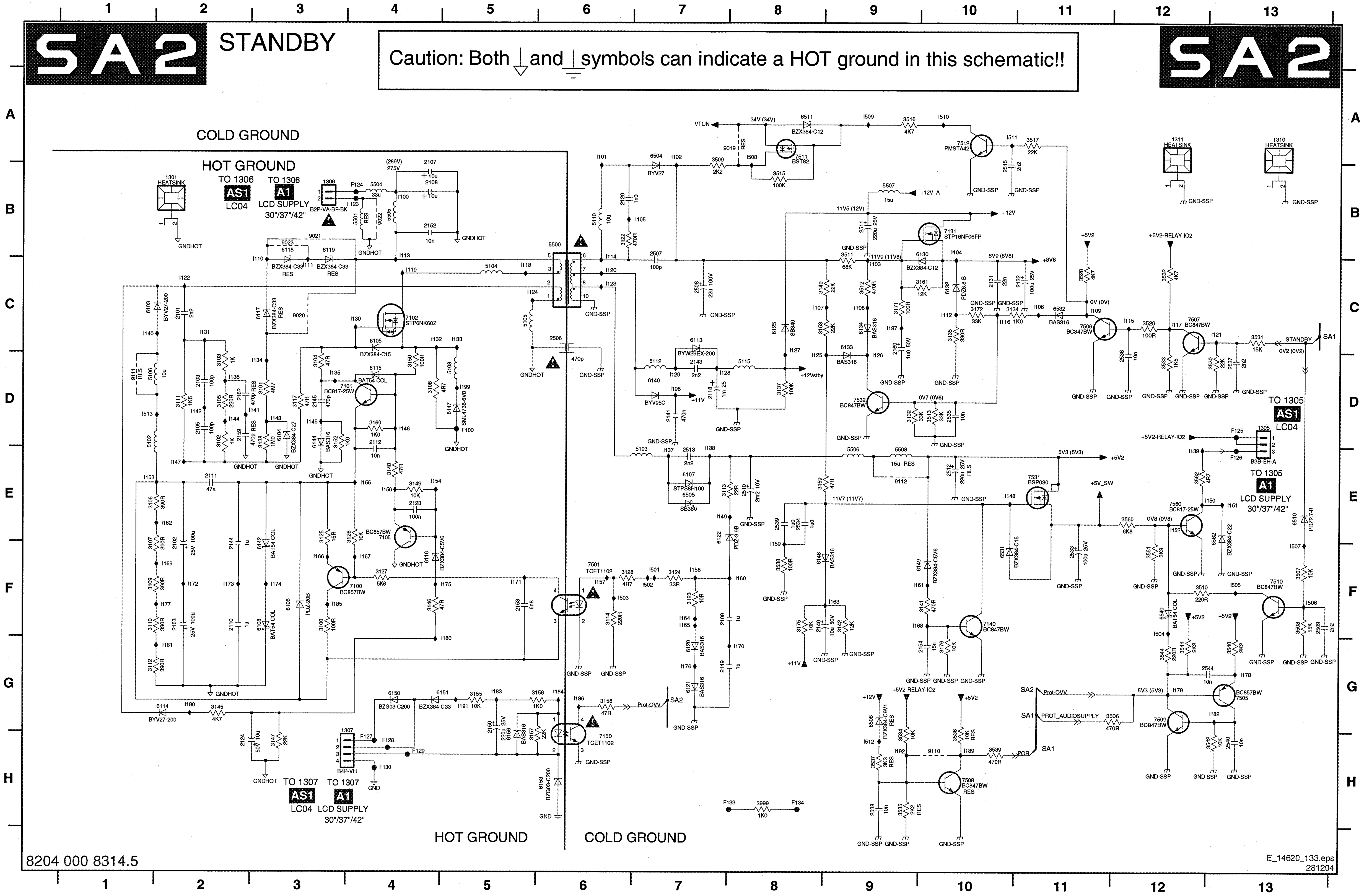
0317	A1
1101	A1
2126	A1
3101	A1
3102	A1
3103	A1
3104	A1
3105	A1
3106	A1
3107	A1
3108	A1
3109	A1
3120	A1
3121	A1
3122	A1
3123	A1
3124	A1
3125	A1
3126	A1
3127	A1
3128	A1
4101	A1
4107	A1
4108	A1
4109	A1
4110	A1
4111	A1
5100	A1
6101	A1
6105	A1
7103	A1
7105	A1
7107	A1
7120	A1

LCD Standby Audio Panel: Connections


SA1
CONNECTIONS
SA1
TO DISPLAY 1314 PH-B
TO DISPLAY 1315 PH-B
TO DISPLAY 1316 B12P-PH-K
TO DISPLAY 1317 B12P-PH-K
1318 B6B-PH-K
+5V_SW
+5V_SW
9008
9009 RES
9002 RES
9003 RES
F137
F138
GND-SSP
ON_OFF
SA1 (3x)
DIM_CONTROL
SA1
ON_OFF
SA1 (3x)
DIM_CONTROL
SA1
POR
SA2
ON_OFF
SA1 (3x)
F111
F113
F115
+5V_SW
9113
STANDBY
SA2
PROT_AUDIOSUPPLY
SA2
F121
F139
F122
+5V2-RELAY-IO2
1M03 PH-B
TO 1M03 B21 SSB EMG
OR
TO 1M03 B10 SSB JAGUAR
TO DISPLAY 1313 440091-7
TO DISPLAY 1312 440091-7
F102
F104
F105
F106
F107
F119
TO 1303 A4 LCD SUPPLY 42"
+24V_2
1303 B4P-VH
F103
F110
1M10 B4B-PH-K
TO AL AMBI LIGHT
1320 B3P-VH
TO 1320 A4 LCD SUPPLY 42"
F101
+12V_+24V
1304 B4P-VH
9018
F108
+12V_A
TO 1304 A2 LCD SUPPLY 30"/37"/42"
TO 1304 AS1 LC04
9004
5018 68u RES
9010
F120
9006
9007
9005
5019 68u RES
9011
1309 B3P-VH
F112
TO 1309 A2 LCD SUPPLY 30"/37"/42"
TO 1309 AS2 LC04
3190 1K2
3191 1K2
3192 1K2
1K2
1M46 B11B-PH-K
F131
F135
F136
F109
F114
F132
F117
9001
+8V6
+12V
+5V_SW
GND-SSP
+5V2
VTUN
+12V
9V_STBY
9V_STBY_SW
TO 1M46 B21 SSB EMG
OR
TO 1M46 B10 SSB JAGUAR
0001
GND screw
GND-SSP
8204 000 8314.5
E_14620_132.eps
281204
1 2 3 4 5 6 7 8 9 10
A B C D E

0001	E1
1303	A9
1304	B9
1309	D9
1312	A8
1313	A7
1314	B1
1315	B2
1316	A3
1317	A4
1318	A5
1320	B9
1M03	B7
1M10	A9
1M46	D7
3190	D9
3191	D9
3192	D9
5018	C8
5019	D8
9001	E6
9002	B5
9003	B5
9004	C8
9005	D8
9006	C9
9007	C9
9008	A5
9009	A5
9010	C8
9011	D8
9018	B10
9113	B6
F101	B10
F102	A8
F103	A9
F104	A7
F105	A7
F106	A7
F107	B7
F108	B10
F109	E6
F110	B9
F111	B6
F112	D10
F113	B6
F114	E6
F115	B6
F117	E6
F119	B7
F120	C8
F121	B6
F122	C6
F131	D6
F132	E6
F135	D6
F136	D6
F137	A5
F138	B5
F139	C6

LCD Standby Audio Panel: Standby


SA2
STANDBY
Caution: Both ⏚ and ⏚ symbols can indicate a HOT ground in this schematic!!
SA2
COLD GROUND
HOT GROUND
TO 1306
AS1
LC04
TO 1306
A1
LCD SUPPLY
30"/37"/42"
1301 HEATSINK
1306
B2P-VA-BF-BK
5500
7102 STP6NK60Z
7101 BC817-25W
7105 BC857BW
7100 BC857BW
7501 TCET1102
7150 TCET1102
1307
B4P-VH
TO 1307
AS1
LC04
TO 1307
A1
LCD SUPPLY
30"/37"/42"
GNDHOT
GND-SSP
VTUN
34V (34V)
7511 BST82
7512 PMSTA42
+12V_A
11V5 (12V)
+12V
7131 STP16NF06FP
11V9 (11V8)
8V9 (8V8)
+8V6
+12Vstby
+11V
7532 BC847BW
0V7 (0V8)
5V3 (5V3)
+5V2
+5V_SW
7531 BSP030
11V7 (11V7)
7140 BC847BW
7508 BC847BW RES
+5V2-RELAY-IO2
1311 HEATSINK
1310 HEATSINK
7506 BC847BW
7507 BC847BW
STANDBY
0V2 (0V2)
SA1
TO 1305
AS1
LC04
1305
B3B-EH-A
TO 1305
A1
LCD SUPPLY
30"/37"/42"
7560 BC817-25W
0V8 (0V8)
7510 BC857BW
7505 BC857BW
7509 BC847BW
SA2
Prot-OVV
SA1
PROT_AUDIOSUPPLY
POR
SA1
HOT GROUND
COLD GROUND
8204 000 8314.5
E_14620_133.eps
281204
1 2 3 4 5 6 7 8 9 10 11 12 13
A B C D E F G H

1301	B2
1305	D13
1306	B3
1307	H4
1310	A13
1311	A12
2101	C2
2102	F2
2103	D2
2105	D2
2107	A4
2108	B4
2109	F7
2110	F2
2111	E2
2112	D4
2118	D7
2123	E4
2124	H2
2129	B6
2131	C10
2132	C11
2140	F8
2141	D7
2143	D7
2144	F2
2145	D3
2149	G7
2150	G5
2152	B4
2153	F5
2154	G10
2159	D2
2160	C9
2162	D2
2163	F2
2506	C6
2507	B7
2508	C7
2509	F13
2510	E8
2511	B9
2512	E10
2513	E7
2515	B10
2533	F11
2534	E8
2535	D10
2536	D12
2537	D13
2538	H9
2539	E8
2540	H13
2544	G13
3100	F3
3101	D3
3102	D2
3103	D2
3104	D3
3105	D2
3106	E1
3107	F1
3108	D4
3109	F1
3110	F1
3111	D2
3112	G1
3113	E7
3114	F6
3117	D3
3122	B6
3123	F7
3124	F7
3125	E3
3126	E4
3127	F4
3128	F6
3132	D9
3134	C10
3135	C10
3137	D8
3138	D3
3140	C8
3141	F10
3142	F9
3145	G2
3146	F4
3147	H3
3148	E4
3149	E4
3150	D4
3152	D3
3153	C8
3155	G5
3156	G6
3157	H5
3158	G6
3159	E8
3160	D4
3161	C10
3171	C9
3172	C10
3175	F8
3176	G10
3506	G12
3507	F13
3508	F13
3509	A7
3510	F12
3511	B9
3512	C9
3513	D10
3515	B8
3516	A9
3517	A11
3528	C11
3529	C12
3530	D13
3531	C13
3532	C12
3533	D12
3534	H9
3535	H9
3536	H10
3537	H9
3538	F8
3539	H10
3540	G13
3541	G12
3542	H13
3544	G12
3560	E12
3561	F12
3562	E12
3999	H8
5102	D1
5103	E7
5104	C5
5105	C5
5106	D1
5108	D5
5110	B6
5112	D7
5115	D8
5500	B6
5501	B4
5504	B4
5505	B4
5506	E9
5507	B9
5508	E9
6103	C1
6104	D3
6105	C4
6106	F3
6107	E7
6108	F3
6113	C7
6114	G2
6115	D4
6116	F4
6117	C3
6118	B3
6119	B3
6120	G7
6121	G7
6122	E7
6125	C8
6130	B10
6132	C10
6133	C9
6134	C9
6140	D7
6142	F3
6144	D3
6147	D5
6148	F8
6149	F9
6150	G4
6151	G5
6153	H6
6156	H5
6504	A7
6505	E7
6508	G9
6510	E13
6511	A8
6531	F10
6532	C11
6540	F12
6562	E13
7100	F4
7101	D4
7102	C4
7105	E4
7131	B10
7140	F10
7150	H6
7501	F6
7505	G13
7506	C11
7507	C12
7508	H10
7509	G12
7510	F13
7511	A8
7512	A10
7531	E11
7532	D9
7560	E12
9019	A8
9020	C3
9021	B3
9022	B4
9023	B3
9110	H10
9111	D1
9112	E9
F100	D5
F123	B4
F124	B4
F125	D13
F126	E13
F127	H4
F128	H4
F129	H4
F130	H4
F133	H8
F134	H8
I100	B4
I101	A6
I102	A7
I103	C9
I104	B10
I105	B7
I106	C11
I107	C8
I108	C9
I109	C11
I110	C3
I111	C3
I112	C10
I113	B4
I114	B6
I115	C12
I116	C10
I117	C12
I118	C5
I119	C4
I120	C6
I121	C13
I122	C2
I123	C6
I124	C5
I125	D8
I126	D9
I127	C8
I128	D7
I129	D7
I130	C4
I131	C2
I132	C4
I133	C5
I134	D3
I135	D3
I136	D2
I137	E7
I138	E7
I139	E12
I140	C1
I141	D3
I142	D2
I143	D3
I144	D2
I145	D3
I146	D4
I147	E2
I148	E10
I149	E7
I150	E13
I151	E13
I152	E12
I153	E1
I154	E4
I155	E4
I156	E4
I157	F6
I158	F7
I159	F8
I160	F8
I161	F9
I162	E2
I163	F9
I164	F7
I165	F7
I166	F3
I167	F4
I168	F9
I169	F2
I170	G8
I171	F5
I172	F2
I173	F2
I174	F3
I175	F5
I176	G7
I177	F2
I178	G13
I179	G12
I180	G5
I181	G2
I182	G13
I183	G5
I184	G6
I185	F3
I186	G6
I189	H10
I190	G2
I191	G5
I192	H9
I197	C9
I198	D7
I199	D5
I501	F7
I502	F7
I503	F6
I504	F12
I505	F13
I506	F13
I507	F13
I508	A8
I509	A9
I510	A10
I511	A10
I512	H9
I513	D1

LCD Standby Audio Panel: Audio

0044 F13
0045 B2
1735 F2
1736 G2
1737 F7
1738 F7
1739 F5
1M02 A9
2702 C4
2704 C3
2705 A7
2706 B4
2707 C4
2708 A3
2709 D6
2710 D6
2711 E2
2712 D5
2713 B7
2714 E4
2715 F4
2716 E4
2717 G4
2718 E3
2719 F5
2720 B3
2721 C2
2722 D2
2723 F8
2725 F6
2726 E3
2727 E3
2728 E3
2729 F3
2741 F12
2743 F13
2753 E13
2754 D11
2755 D11
2756 E11
2758 G9
2759 F8
2762 E13
2764 B3
2766 A4
2768 E5
2769 D5
2777 D2
2778 C5
2779 E3
2780 E5
2781 D5
2782 D12
2783 C7
2784 D13
2785 B13
2786 B4
2787 C5
2788 D2
2789 D2
2790 E2
2791 C7
2792 C8
2793 D13
2794 C9
2795 D12
2796 C10
2797 D8
2798 E8
2799 D13
3701 E6
3702 B6
3703 A6
3704 B6
3705 C3
3706 E6
3707 D6
3708 E6
3709 F5
3710 E4
3711 D5
3712 E3
3713 D7
3714 C6
3715 B6
3716 B6
3717 F4
3718 G4
3720 F7
3721 B2
3722 C2
3723 C2
3724 F2
3725 E3
3726 F2
3727 F5
3729 G9
3730 F7
3741 F12
3743 F4
3744 G12
3746 C6
3747 C6
3748 C5
3749 A7
3750 G3
3751 G8
3752 B8
3753 G8
3754 C8
3755 B10
3756 F4
3757 G3
3758 C10
3759 D8
3760 E8
3761 A12
3762 B12
3763 B12
3764 C12
3765 C12
3766 B14
3767 B12
3768 A13
3790 C4
3791 C3
3792 B3
3793 B4
3794 D11
3795 C5
3796 E11
3797 C5
3798 D6
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5703 B5
5704 F7
5705 F6
5707 D2
5708 E2
5711 D5
5712 D5
5720 F9
5722 D13
5723 D13
5730 F2
5731 G2
5732 G8
6701 C6
6702 B12
6703 C12
6704 B6
6710 D8
6711 E8
7700 C5
7701 B7
7702 E11
7703 C7
7704 B5
7705 B6
7706 C6
7707 C5
7708 C13
7709 C13
7710 B13
7711 B13
7712 D9
7713 E9
7714 C5
7715-1 C9
7715-2 C11
9717 B5
9718 B13
F708 F2
F710 G2
F711 A2
F712 A2
F713 C3
F714 B5
F718 D10
F720 G8
F721 G2
F722 F2
F731 G8
F736 G7
F737 G6
F738 F2
F739 G2
F741 F8
F742 B9
F743 B9
F744 B9
F745 A9
F747 F5
F748 G5
F749 G6
F751 F6
I700 E6
I701 E6
I702 A6
I703 B6
I704 A6
I705 D6
I706 D5
I707 D5
I708 F12
I709 E4
I710 F5
I711 C4
I712 A5
I713 E4
I714 C8
I715 A7
I716 E3
I717 B5
I718 B5
I719 E3
I720 C8
I721 C3
I722 B3
I723 B9
I724 D3
I725 E2
I726 C3
I727 B5
I728 C9
I729 C5
I730 F7
I731 B11
I732 B6
I733 C10
I734 F12
I735 D8
I736 E8
I737 C6
I738 C6
I739 B6
I740 D9
I741 E9
I742 C12
I743 C12
I744 D5
I745 B4
I746 E13
I747 D11
I748 B3
I749 C3
I750 B12
I751 A12
I752 E13
I753 B3
I754 E3
I755 F4
I756 C2
I757 D2
I758 E11
I759 E11
I760 C5
I761 F8
I762 D11
I763 C6
I764 C13
I765 D13
I766 F9
I767 F2
I768 G3
I769 F3
I770 G2
I771 G3
I772 F8
I773 F9
I774 F9
I776 E4
I777 D2
I778 E3
I779 E3
I780 E13
I781 C13
I782 C13
I783 B3
I784 B3
I785 B4
I786 B4
I787 C4
I788 C7
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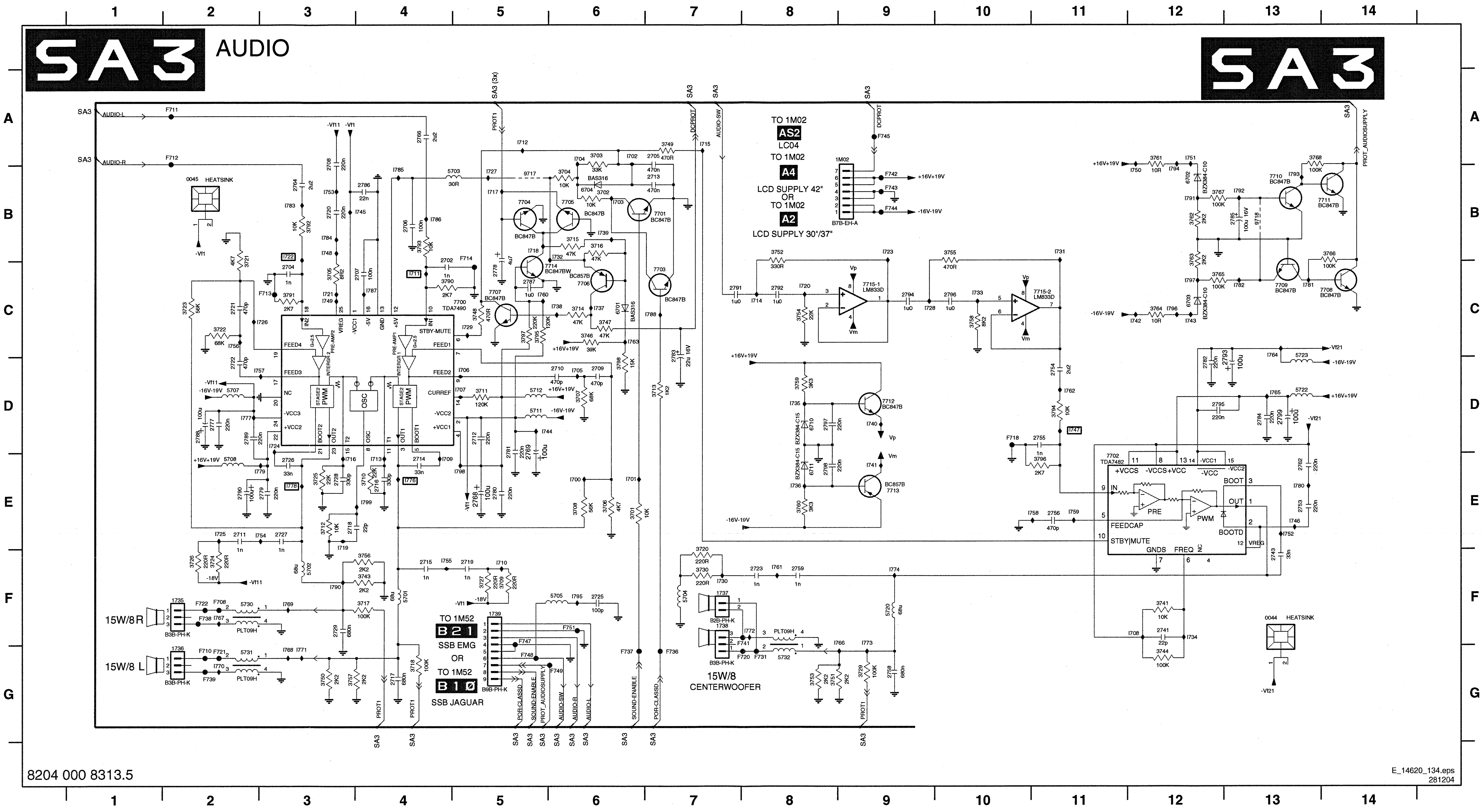
I799 E4

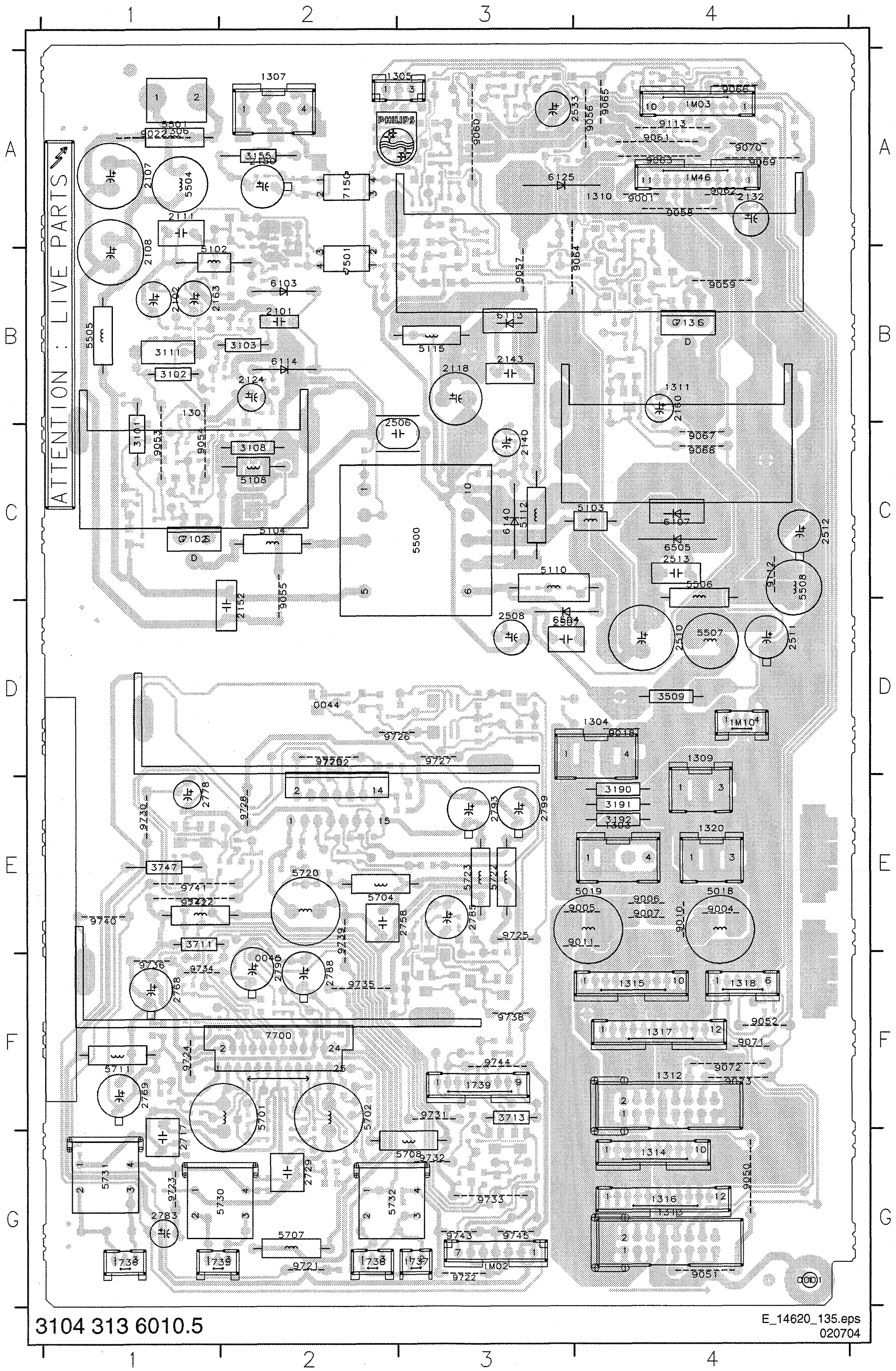


SA3
AUDIO
SA3
AUDIO-L
AUDIO-R
F711
F712
0045 HEATSINK
-Vf11
TDA7490
7700
STBY-MUTE
FEED1
FEED2
FEED3
FEED4
NC
-VCC3
+VCC2
-VCC2
+VCC1
CURREF
OSC
PWM
STAGE2
PRE-AMP2
PRE-AMP1
VREG
BOOT1
BOOT2
OUT1
OUT2
IN1
IN2
BC847B
BC857B
BC847BW
BAS316
7701
7703
7704
7705
7706
7707
7714
15W/8R
15W/8 L
B3B-PH-K
PLT09H
1735
1736
TO 1M52
B21
SSB EMG
OR
TO 1M52
B10
SSB JAGUAR
B9B-PH-K
1739
POR-CLASSD
SOUND-ENABLE
PROT_AUDIOSUPPLY
AUDIO-SW
AUDIO-R
AUDIO-L
PROT1
DCPROT
TO 1M02
AS2
LC04
TO 1M02
A4
LCD SUPPLY 42"
OR
TO 1M02
A2
LCD SUPPLY 30"/37"
1M02
B7B-EH-A
+16V+19V
-16V-19V
F742
F743
F744
F745
7715-1
LM833D
7715-2
LM833D
Vp
Vm
7712
BC847B
7713
BC857B
BZX384-C15
15W/8
CENTERWOOFER
1737
1738
B2B-PH-K
B3B-PH-K
7702
TDA7482
+VCCS
-VCCS
+VCC
-VCC
-VCC1
-VCC2
IN
PRE
PWM
BOOT
OUT
BOOTD
FEEDCAP
STBY|MUTE
GNDS
FREQ
NC
VREG
7708
7709
7710
7711
BZX384-C10
0044 HEATSINK
-Vf21
Vf21

8204 000 8313.5

E_14620_134.eps
281204

Layout LCD Standby Audio Panel (Top Side)



0001	G4
0044	D1
0045	E1
1301	B1
1303	E4
1304	D4
1305	A3
1306	A1
1307	A2
1309	D4
1310	A3
1311	B4
1312	F4
1313	G4
1314	G4
1315	F4
1316	G4
1317	F4
1318	F4
1320	E4
1735	G1
1736	G1
1737	G3
1738	G2
1739	F3
1M02	G3
1M03	A4
1M10	D4
1M46	A4
2101	B2
2102	B1
2107	A1
2108	A1
2111	A1
2118	B3
2124	B2
2132	A4
2140	C3
2143	B3
2150	A2
2152	D2
2160	B4
2163	B1
2506	B2
2507	D3
2508	D3
2510	D4
2511	D4
2512	C4
2513	C4
2533	A4
2717	F1
2729	G2
2758	E3
2768	F1
2769	F1
2778	E1
2783	G1
2785	E3
2788	F2
2790	E2
2793	E3
2799	E3
3101	B1
3102	B1
3103	B2
3108	C2
3111	B1
3155	A2
3190	E3
3191	E3
3192	E3
3509	D4
3711	F1
3713	F3
3747	E1
5018	E4
5019	E4
5102	B2
5103	C4
5104	C2
5108	C1
5110	C3
5112	C3
5115	B3
5500	C3
5501	A1
5504	A1
5505	B1
5506	C4
5507	D4
5508	C4
5701	F2
5702	F2
5704	E2
5707	G2
5708	G3
5711	F1
5712	E1
5720	E2
5722	E3
5723	E3
5730	G2
5731	G1
5732	G3
6103	B2
6107	C4
6113	B3
6114	B2
6125	A3
6140	C3
6504	D3
6505	C4
7102	C1
7131	B4
7150	A2
7501	B2
7700	F2
7702	E3
9001	A4
9004	E4
9005	E4
9006	E4
9007	E4
9010	E4
9011	E4
9018	D4
9022	A1
9050	G4
9051	G4
9052	F4
9053	B1
9054	B1
9055	C2
9056	A4
9057	A3
9058	A4
9059	B4
9060	A3
9061	A4
9062	A4
9063	A4
9064	A3
9065	A4
9066	A4
9067	C4
9068	C4
9069	A4
9070	A4
9071	F4
9072	F4
9073	F4
9112	C4
9113	A4
9721	G2
9722	G3
9723	G1
9724	F1
9725	E3
9726	D2
9727	D3
9728	E2
9729	D2
9730	E1
9731	F3
9732	G3
9733	G3
9734	F1
9735	F3
9736	F1
9738	F3
9739	F2
9740	E1
9741	E1
9742	E1
9743	G3
9744	F3
9745	G3

Layout LCD Standby Audio Panel (Overview Bottom Side)

2103	B4
2105	B4
2109	B2
2110	B4
2112	C4
2123	C4
2129	C2
2131	A1
2141	C2
2144	A4
2145	C3
2149	B2
2153	B3
2154	A2
2159	B3
2162	B3
2509	A2
2515	B1
2534	A2
2535	A1
2536	B2
2537	A1
2538	A1
2539	A2
2540	A2
2544	A2
2702	F4
2704	F3
2705	G2
2706	F3
2707	F3
2708	F3
2709	G3
2710	F3
2711	G3
2712	F4
2713	G2
2714	F4
2715	F4
2716	F3
2718	F3
2719	F4
2720	F3
2721	G3
2722	G3
2723	E3
2725	F2
2726	G3
2727	G3
2728	F3
2741	D3
2743	E3
2753	D3
2754	E2
2755	E3
2756	E3
2759	E3
2762	E2
2764	F2
2766	F2
2777	F3
2779	F3
2780	F4
2781	F4
2782	E2
2784	E3
2786	F4
2787	E3
2789	F3
2791	F2
2792	D2
2794	D2
2795	E3
2796	D2
2797	D2
2798	D3
3100	A3
3104	C4
3105	B4
3106	B4
3107	B4
3109	B4
3110	B3
3112	B3
3113	B2
3114	B3
3117	C4
3122	C2
3123	B2
3124	B3
3125	A3
3126	A3
3127	B3
3128	B3
3132	B1
3134	A1
3135	A1
3137	B2
3138	C4
3140	B1
3141	A2
3142	C2
3145	B3
3146	B3
3147	B3
3148	C4
3149	C4
3150	C4
3152	C3
3153	B1
3155	A3
3156	A3
3157	A3
3158	A2
3159	B2
3160	C4
3161	B1
3171	B1
3172	A1
3175	C2
3176	A2
3190	E1
3191	E1
3192	E1
3506	A2
3507	A2
3508	A2
3509	D1
3510	A2
3511	B1
3512	B1
3513	B1
3515	B1
3516	B1
3517	B1
3528	A1
3529	B2
3530	A1
3531	A1
3532	A2
3533	B2
3534	A1
3535	A1
3536	A1
3537	A1
3538	A2
3539	A1
3540	A2
3541	A2
3542	A2
3544	A2
3560	A2
3561	A3
3562	A3
3701	F2
3702	G2
3703	G2
3704	G2
3705	F3
3706	G3
3707	F3
3708	F3
3709	F4
3710	F3
3711	E4
3712	F4
3713	F2
3714	E4
3715	E3
3716	G2
3717	G4
3718	G4
3720	E3
3721	F3
3722	G3
3723	G3
3724	G3
3725	F3
3726	G3
3727	F4
3729	G3
3730	E3
3741	D3
3743	G3
3744	E3
3746	G2
3747	E4
3748	F4
3749	E3
3750	G4
3751	G3
3752	D2
3753	G3
3754	D2
3755	D2
3756	G3
3757	G4
3758	D3
3759	D2
3760	D3
3761	F2
3762	F2
3763	E2
3764	F2
3765	E2
3766	F2
3767	E2
3768	F2
3790	F4
3791	F3
3792	F3
3793	F4
3794	E3
3795	E3
3796	E3
3797	E3
3798	G2
3999	D2
5105	C3
5106	B3
5703	F4
5705	F2
6104	C4
6105	C4
6106	A3
6108	B3
6115	C4
6116	B3
6117	B4
6118	C4
6119	C4
6120	A2
6121	B2
6122	B2
6130	B1
6132	B1
6133	B1
6134	B1
6142	B3
6144	C3
6147	C3
6148	B2
6149	A2
6150	A3
6151	A3
6153	A3
6156	A3
6508	A1
6510	A2
6511	B1
6531	A2
6532	A1
6540	A2
6562	A3
6701	G2
6702	E2
6703	F3
6704	G2
6710	D2
6711	D3
7100	A3
7101	C4
7105	B4
7140	A2
7505	A2
7506	B1
7507	A2
7508	A1
7509	A2
7510	A2
7511	B1
7512	B1
7531	A2
7532	B1
7560	A3
7701	G2
7703	G2
7704	E4
7705	E4
7706	E3
7707	E4
7708	F2
7709	F2
7710	F2
7711	F2
7712	D2
7713	D3
7714	E3
7715	D2
9002	F1
9003	F1
9008	F1
9009	F1
9019	B1
9020	B4
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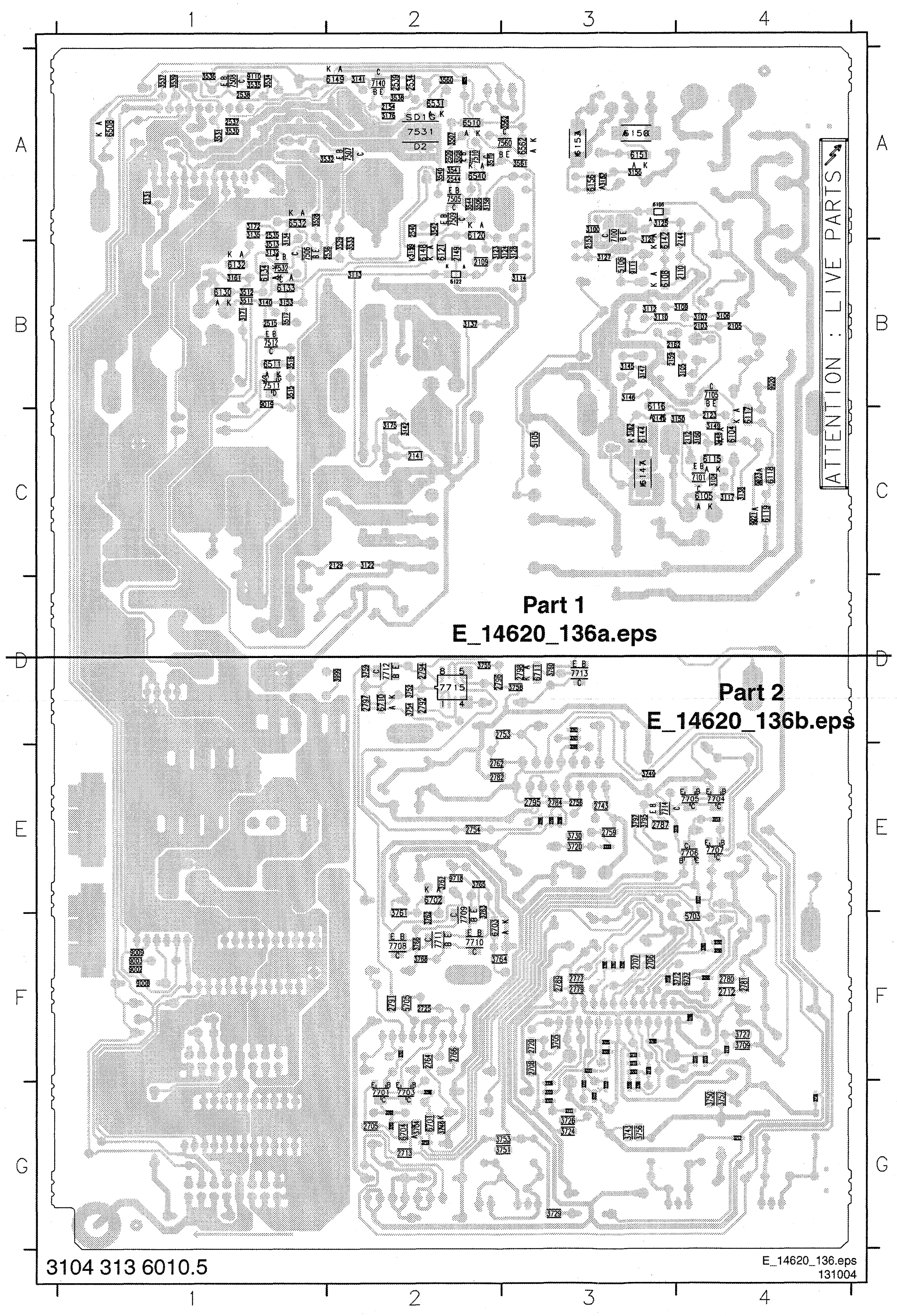
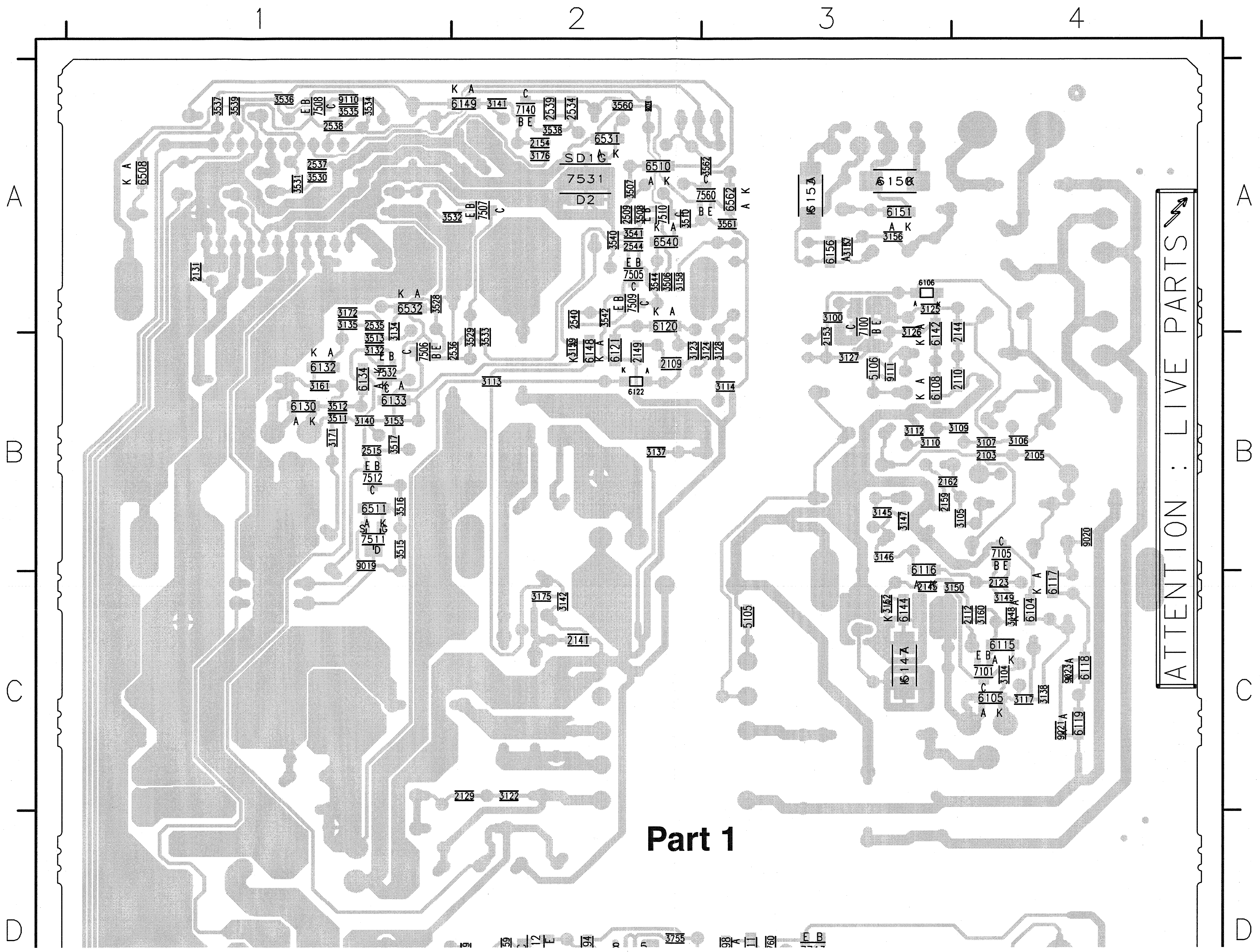
9074	A2
9110	A1
9111	B3
9717	E4
9718	E2
9737	F4



Layout LCD Standby Audio Panel (Part 1 Bottom Side)


1
2
3
4
A
B
C
D
Part 1
ATTENTION : LIVE PARTS
3537
3539
3536
7508
9110
3535
3534
2538
6149
3141
7140
2539
2534
3560
3538
2154
3176
6531
SD1
7531
D2
6510
3562
7560
6562
6508
2537
3530
3531
3532
7507
3507
2509
3508
7510
3516
3561
3540
3541
2544
6540
2131
7505
3544
3506
3158
7509
3172
3135
6532
3528
2535
3513
3134
3132
7506
2536
3529
3533
2540
3542
6120
6132
3161
6134
6133
3139
6148
6121
2149
2109
3123
3124
3128
6122
3113
3114
6130
3512
3511
3140
3153
3171
2515
3517
7512
3137
6511
3516
7511
3515
9019
3175
3142
2141
5105
2129
3122
3755
6153
6150
6151
3156
6156
3182
6106
3125
3100
2153
7100
3126
6142
2144
3127
5106
9111
6108
2110
3112
3110
3109
3107
3106
2103
2105
2162
2159
3105
3145
3147
3146
6116
2145
3150
9020
7105
2123
6117
3162
6144
2112
3160
3149
3148
6104
6147
6115
7101
3104
6118
9023
6105
3117
3138
9021
6119

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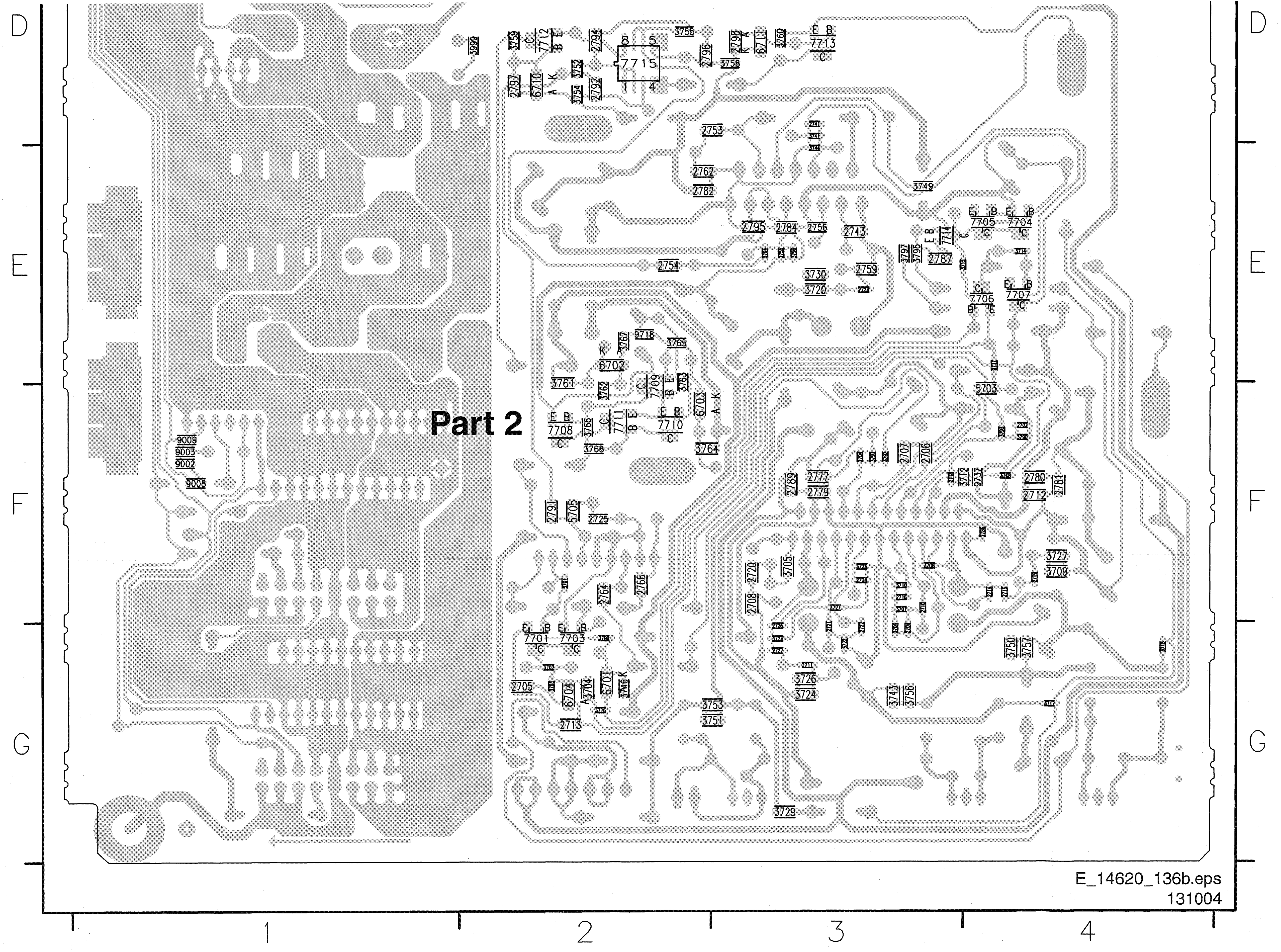
131004

Layout LCD Standby Audio Panel (Part 2 Bottom Side)


D
E
F
G
1
2
3
4
Part 2
3999
3759
7712
2794
7715
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3760
7713
2797
6710
3752
3754
2792
3758
2753
2762
2782
3749
2795
2784
2756
2743
7705
7704
3792
3795
7714
2787
2754
3730
3720
2759
7706
7707
9718
3767
3765
6702
3761
3762
7709
3763
6703
5703
7708
3766
7711
7710
3768
3764
9009
9003
9002
9008
2707
2706
2789
2777
2779
3712
9737
2780
2712
2781
2791
5705
2725
2720
3705
2708
3727
3709
2764
2766
7701
7703
2705
6704
3704
6701
3746
2713
3753
3751
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3757
3743
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3729

E_14620_136b.eps
131004

Personal Notes:

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131004

8. Alignments

Index of this chapter:

8.1 General Alignment Conditions
8.2 Hardware Alignments
8.3 Software Alignments
8.4 Option Settings

Note: The Service Default Mode (SDM) and Service Alignment Mode (SAM) are described in chapter 5. Menu navigation is done with the CURSOR UP, DOWN, LEFT or RIGHT keys of the remote control transmitter.

8.1 General Alignment Conditions

8.1.1 Start Conditions

Perform all electrical adjustments under the following conditions:

- Power supply voltage (depends on region):
  - AP-NTSC: 120 V_{AC} or 230 V_{AC} / 50 Hz (± 10%).
  - AP-PAL-multi: 120 - 230 V_{AC} / 50 Hz (± 10%).
  - EU: 230 V_{AC} / 50 Hz (± 10%).
  - LATAM-NTSC: 120 - 230 V_{AC} / 50 Hz (± 10%).
  - US: 120 V_{AC} / 60 Hz (± 10%).
- Connect the set to the mains via an isolation transformer with low internal resistance.
- Allow the set to warm up for approximately 15 minutes.
- Measure voltages and waveforms in relation to chassis ground (with the exception of the voltages on the primary side of the power supply).
  Caution: never use heatsinks as ground.
- Test probe: Ri > 10 Mohm, Ci < 20 pF.
- Use an isolated trimmer/screwdriver to perform alignments.

8.1.2 Initial Settings

Perform all electrical adjustments with the following initial settings:

1. To avoid the working of the lightsensor, set "Active Control" to "Off" (via the "Active Control" button on the RC).
2. Set "Smart Picture" to "Natural" or "Soft" (via the "Smart Picture" button on the RC).

8.1.3 Alignment Sequence

- First, set the correct options:
  - In SAM, select OPTIONS,
  - Fill in the option settings according to the set sticker (see also paragraph "Option Settings"),
  - Store the OPTIONS by switching the set to STAND-BY.
- Warming up (>15 minutes).
- White-D alignment.

8.2 Hardware Alignments

8.2.1 Backlight Voltage Alignment

Switch the set "on" and measure the voltage between pin 3 (or 4) of connector 1304 (on MF panel) and ground. Align R3026 until this voltage is 12.2 V_{DC} +/- 0.1 V.

Caution: This voltage must be aligned very precisely (within 1%): when it is too high, it can destroy the inverters. When it is too low, the backlight will not start up.

8.3 Software Alignments

With the software alignments of the Service Alignment Mode (SAM) the geometry, white tone and tuner (IF) can be aligned. To store the data: Use the RC button Menu to switch to the main menu and next, switch to 'Stand-by' mode.

For the next alignments, supply the following test signals via a video generator to the RF input:

- **EU/AP-PAL** models: a PAL B/G TV-signal with a signal strength of at least 1 mV and a frequency of 475.25 MHz
- **US/AP-NTSC** models: an NTSC M/N TV-signal with a signal strength of at least 1 mV and a frequency of 61.25 MHz (channel 3).

8.3.1 SAM Menu

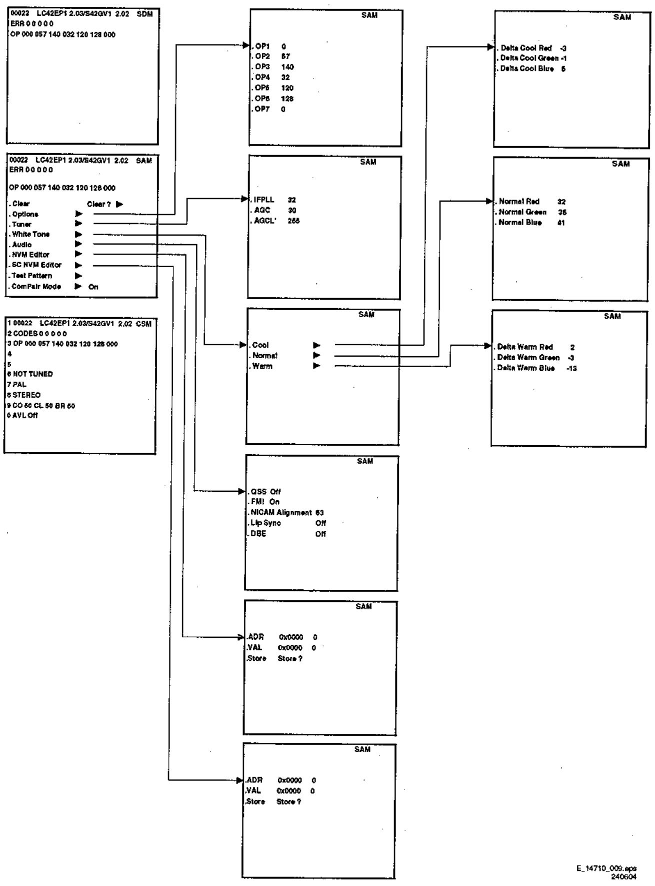

00022 LC42EP1 2.03/S42GV1 2.02 SDM
ERR 0 0 0 0 0
OP 000 057 140 032 120 128 000
00022 LC42EP1 2.03/S42GV1 2.02 SAM
ERR 0 0 0 0 0
OP 000 057 140 032 120 128 000
. Clear Clear ?
. Options
. Tuner
. White Tone
. Audio
. NVM Editor
. SC NVM Editor
. Test Pattern
. ComPair Mode On
1 00022 LC42EP1 2.03/S42GV1 2.02 CSM
2 CODES 0 0 0 0 0
3 OP 000 057 140 032 120 128 000
4
5
6 NOT TUNED
7 PAL
8 STEREO
9 CO 50 CL 50 BR 50
0 AVL Off
SAM
. OP1 0
. OP2 57
. OP3 140
. OP4 32
. OP5 120
. OP6 128
. OP7 0
SAM
. IFPLL 32
. AGC 30
. AGCL' 255
SAM
. Cool
. Normal
. Warm
SAM
. QSS Off
. FMI On
. NICAM Alignment 63
. Lip Sync Off
. DBE Off
SAM
.ADR 0x0000 0
.VAL 0x0000 0
.Store Store ?
SAM
.ADR 0x0000 0
.VAL 0x0000 0
.Store Store ?
SAM
. Delta Cool Red -3
. Delta Cool Green -1
. Delta Cool Blue 5
SAM
. Normal Red 32
. Normal Green 35
. Normal Blue 41
SAM
. Delta Warm Red 2
. Delta Warm Green -3
. Delta Warm Blue -13
E_14710_009.eps
240604

Figure 8-1 Overview SAM menu (example from EU set).

8.3.2 White Tone

Method 1 (with colour analyser):

1. Supply a 100% white uniformity test signal (100 IRE white) to the tuner.
2. Enter SAM menu (colour features are switched "off" automatically).
3. Do NOT change the SMART PICTURE, ACTIVE CONTROL, and CONTRAST+ settings to prevent activating of Green Enhancement, Blue Stretch, and Black Stretch.

Offset values in NVM are used for HD-, HDMI-, and VGA mode, therefore only the settings in TV mode need to be set.

Make the following settings in the normal **user menu**, when the television is in TV Mode:

Table 8-1 User menu settings for White Tone alignment

	LCD (AUO)	LCD (LPL)	Plasma (SDI)
CONTRAST	99		
BRIGHTNESS	42 (EU) 44 (US)	46	46 (AP+EU) 48 (US+LA)
COLOR/SAT.	50 (AP+LA+US) 60 (EU)		

Go to WHITE TONE in SAM and set NORMAL GREEN to:

Table 8-2 Service menu settings for White Tone alignment

	LCD (AUO)	LCD (LPL)	Plasma (SDI)
NORM. GREEN	200		180

1. Measure with a calibrated (phosphor- independent) colour analyser (e.g. Minolta CA-200) in the centre of the screen (use a contact less analyser, e.g. Minolta CA-210, to align the LCD TV). The analyser may not touch the screen, and the measurement must be done in a dark environment.
   Note: The colour analyser must be calibrated for the LCD or Plasma panel in question. See the manual of the colour analyser for the procedure on how to perform this calibration.
2. Leave the value with the lowest output on the initial value.
3. Align the NORMAL white points, by lowering the other two colours, to the right x-y coordinates (see table "White Tone alignment values").
   Note: To prevent clipping of the colour, these values must only be lowered!

Table 8-3 White Tone alignment values

	NORMAL colour temp. (all regions)
X	0.289
Y	0.299

Only the values for NORMAL are aligned with X, Y values. The delta values for COOL and WARM are given below.

Table 8-4 Fixed delta values

Screen Type	Colour temp.	RED	GREEN	BLUE
LCD (AUO)	DELTA COOL	-3	-12	+10
	DELTA WARM	+5	-5	-20
LCD (LPL)	DELTA COOL	-8	-12	+3
	DELTA WARM	+2	-10	-21
Plasma (SDI)	DELTA COOL	-6	-10	+5
	DELTA WARM	+4	-5	-19

After the alignment is finished, switch the set to STANDBY, in order to store the alignments.
Note: When disconnecting the power before doing this, the settings will not be stored.

Method 2 (without colour analyser):
If you do not have a colour analyser, you can use the default values. These values are based on the average values in production.

- Set the values for the NORMAL colour temperature. Given in the table "Average statistical values for NORMAL" from production.
- Set the delta values for the COOL and WARM mode. See table: "Fixed delta values."

After the alignment is finished, switch the set to STANDBY, in order to store the alignments.
Note: When disconnecting the power before doing this, the settings will not be stored.

Table 8-5 Average statistical values for "NORMAL"

Display type	Colour Temp.	RED	GREEN	BLUE
LCD (AUO)	NORMAL	165	182	200
LCD (LPL)	NORMAL	200	195	190
Plasma 37" (SDI)	NORMAL	174	180	178
Plasma 42" (SDI)	NORMAL	173	180	172
Note: Values are valid for all regions				

8.3.3 Tuner Adjustment

AGC (RF AGC Take Over Point)
Set pattern generator (e.g. PM5580) with colour bar pattern and connect to aerial input with RF signal amplitude -10 mV and set frequency for NTSC to 61.25 MHz (channel 3).

- Activate the SAM-menu. Go to the sub-menu TUNER, select the sub-menu option AFC WINDOW and adjust the value to "100 kHz".
- Select the AGC sub-menu.
- Connect a DC multi-meter to test point F306 or pin 1 of the tuner.
- Adjust the AGC until the voltage at pin 1 of the tuner is 3.3 V +0.5 / -1.0.
- The value can be increased or decreased by pressing the RIGHT/LEFT cursor button on the RC.
- Switch the set to STAND-BY to store the data.

8.3.4 Grey Scale Adjustment

SDTV Grey Scale Adjustment

Equipment and setting

- E.g. Fluke 54200 or Philips PM5580.
- 100% "8-step grey scale" pattern.

Alignment Method

- Switch with the RC to TV mode,
- Press the MUTE button on RC,
- Set SMART PICTURE to SOFT mode,
- Activate the auto colour function by pressing key-sequence:
  INFO - MUTE - MUTE - MUTE - INFO - MENU - INFO.

Expected Results

- Visual check if the 8 Grey levels are correct.

Analog PC Grey Scale Adjustment

Equipment and setting

- Quantum Data 802B.
- PC input signal, with 64 levels Grey scale pattern, 1024x768 @ 60 Hz (Format= 81:DMT1060, Pattern= 123:Grey 64).
- PC input at D-sub VGA connector.

Alignment Method

- Switch with the RC to PC mode.
- Press the MUTE button on RC.
- Set BRIGHTNESS and CONTRAST to nominal "50".
- Activate the auto colour function by pressing key-sequence:
  INFO - MUTE - MUTE - MUTE - INFO - MENU - INFO.

Expected Results

- Visual check if the 64 Grey levels are correct.

HD Grey Scale Adjustment

Equipment and setting

- Quantum Data 802B.
- HD input signal, Top half 100% colour bar and bottom half Grey scale pattern, 1920x1080i @ 60 Hz YPbPr (Format= 1080i30, Pattern= HDBar100).
- HD input at D-sub VGA connector.

Alignment Method

- Switch with the RC to HD mode.
- Press the MUTE button on RC.
- Activate the auto colour function by pressing key-sequence:
  INFO - MUTE - MUTE - MUTE - INFO - MENU - INFO.

Expected Results

- Visual check if Colour bar tint and Grey scale is correct.

8.3.5 Sound

No adjustments needed for sound.

8.4 Option Settings

Options are used to control the presence/absence of certain features and hardware.
See for an overview, the table on the next page.

8.4.1 How to change an Option Byte

An Option Byte represents a number of different options. Changing these bytes directly makes it possible to set all options very fast. All options are controlled via seven option bytes. Select the option byte (OP1.. OP7) with the cursor UP/DOWN keys, and enter the new value.

Leaving the OPTION sub menu saves the changes in the Option Byte settings. Some changes will only take effect after the set has been switched "off" and "on" with the AC power switch (cold start).

Table 8-6 Option codes (general overview for all regions and displays)

Bit (DEC)	Option	Description	/78 (LATAM)	/61 (AP-NTSC)	/69,79,98 (AP-PAL)	/93 (China)	/10, /12 (Europe)	/17, /37 (NAFTA)	Remarks
7 (128)	OP_PHILIPS_TUNER	Philips Tuner available	1	1	1	0	1	1	
6 (64)	OP_FM_RADIO	FM Radio available	0	0	0	0	0	0	
5 (32)	OP_LNA	Low Noise Amplifier available	0	0	0	0	0	0	
4 (16)	OP_ATS	Auto Tuning System	0	0	0	0	1	0	
3 (8)	OP_ACI	ACI	0	0	0	0	1	0	
2 (4)	OP_UK_PNP	After virgin = English + Great Britain	0	0	0	0	0	0	
1 (2)	OP_VIRGIN_MODE	Activate Plug & Play menu at start-up	0	0	0	0	0	0	
0 (1)	OP_CHINA	AP-PAL tuning algorithm for China	0	0	0	1	0	0	
OP1:			**128**	**128**	**128**	**1**	**152**	**128**	
7 (128)	OP_SMART_SOUND	Four smart sound settings	1	1	1	1	1	1	
6 (64)	OP_UI_GREEN	UI for Magnavox sets (NAFTA)	0	0	0	0	0	0	
5 (32)	OP_CHANNEL_NAMING	Naming of channel feature available	1	1	1	1	0	1	
4 (16)	OP_LTI	Histogr. algorithm available (TDA9178)	1	1	1	1	1	1	
3 (8)	OP_TILT	Picture Rotation available	0	0	0	0	0	0	
2 (4)	OP_FINE_TUNING	Fine Tuning algorithm available	1	1	1	1	1	1	
1 (2)	OP_PIP_PHILIPS_TUNER	PIP Philips tuner	0	0	0	0	0	0	
0 (1)	OP_HUE	Tint for NTSC transmission	1	1	1	1	0	1	
OP2:			**181**	**181**	**181**	**181**	**148**	**181**	
7 (128)	OP_EW_FUNCTION	Geometry adj. for Large screen sets	0	0	0	0	0	0	
6 (64)	OP_2TUNER_PIP	Double Tuner for PIP available	0	0	0	0	0	0	
5 (32)	OP_PIP_SPLITTER	Not used	0	0	0	0	0	0	
4 (16)	OP_SPLITTER	Not used	0	0	0	0	0	0	
3 (8)	OP_VIRTUAL_DOLBY	Virtual Dolby Effect	1	1	1	1	1	1	
2 (4)	OP_WIDE_SCREEN	16:9 sets	1	1	1	1	1	1	
1 (2)	OP_WSSB	Wide Screen Signalling Bit detection	0	0	1	0	1	0	
0 (1)	OP_ECO_SUBWOOFER	Sub woofer available	0	0	0	0	0	0	
OP3:			**12**	**12**	**14**	**12**	**14**	**12**	
7 (128)	OP_LIP_SYNC	Lip Synchronisation Circuit available	0	0	0	0	1	0	
6 (64)	OP_NOTUSED2	Not used	0	0	0	0	0	0	
5 (32)	OP_ULTRA_BASS	Ultra Bass Boost available	0	0	0	0	0	0	
4 (16)	OP_DELTA_VOLUME	Delta Volume feature available	0	0	0	0	1	0	EU only
3 (8)	OP_NOTUSED3	Not used	0	0	0	0	0	0	
2 (4)	OP_NOTUSED4	Not used	0	0	0	0	0	0	
1 (2)	OP_STEREO_DBX	Stereo DBX for NTSC available	1	0	0	0	0	1	NTSC only
0 (1)	OP_STEREO_NICAM_2CS	Stereo NICAM 2CS available	0	0	1	0	1	0	
OP4:			**2**	**0**	**1**	**0**	**145**	**2**	
7 (128)	OP_AV1	External Source 1 available	1	1	1	1	1	1	
6 (64)	OP_AV2	External Source 2 available	1	1	1	1	1	1	
5 (32)	OP_AV3	External Source 3 (Side AV) available	1	1	1	1	1	1	
4 (16)	OP_CVI	Component Video In available	1	1	1	1	0	1	Not for EU
3 (8)	OP_SVHS2	Super Video Home System 2 available	1	1	1	1	1	1	
2 (4)	OP_SVHS3	Super Video Home System 3 available	1	1	1	1	1	1	
1 (2)	OP_HOTEL_MODE	LATAM specific simplified Hotel Mode	0	0	0	0	0	0	
0 (1)	OP_NOTUSED	Not used	0	0	0	0	0	0	
OP5:			**252**	**252**	**252**	**252**	**236**	**252**	
7 (128)	OP_PERSONAL_ZAPPING	Zapping of channels feature available	0	0	0	0	0	0	
6 (64)	OP_SMART_SURF	Surf List available	1	0	0	0	0	1	
5 (32)	OP_FMTRAP	FM trap available	0	0	0	0	0	0	
4 (16)	OP_COMBFILTER	comb filter available	1	1	1	1	1	1	In Hercules
3 (8)	OP_ACTIVE_CONTROL	Auto Picture Impr. feature available	1	1	1	1	1	1	
2 (4)	OP_SMART_LOCK	Toggle Child Lock & Lock Chan. enabled	1	1	1	1	1	1	
1 (2)	OP_LIGHT_SENSOR	Light Sensor enabled	1	1	1	1	1	1	
0 (1)	OP_TWIN_TEXT	2 txt pages on screen available	0	0	1	1	1	0	
OP6:			**94**	**30**	**31**	**31**	**31**	**94**	
7 (128)	OP_TIME_WIN1	1= 5 s, 0= 2 s (Europe fixed 1.2 s)	1	1	0	1	0	1	
5, 6	not used		0	0	0	0	0	0	
4 (16)	OP_3DCOMB	3D comb filter available	0	1	0	0	0	1	NTSC only
<AP-PAL>									
3 (8)	OP_COLOR_SYSTEM_AP	1: Auto, PAL 4.43, NTSC 4.43, NTSC 3.58, SECAM 0: OFF- Auto, PAL 4.43, NTSC 4.43, NTSC 3.58	0	0	1	0	0	0	
2 (4)	OP_SOUND_SYSTEM_AP_1	000: BG 001: BG / DK 010: I / DK 011: BG / I / DK 100: BG / I / DK / M	0	1	1	1	0	0	
1 (2)	OP_SOUND_SYSTEM_AP_2		0	0	0	0	0	0	
0 (1)	OP_SOUND_SYSTEM_AP_3		0	0	0	0	0	0	
<EUROPE>									
3 (8)	OP_DUMMY6	Not used	0	0	0	0	0	0	
2 (4)	OP_DUMMY7	Not used	0	0	0	0	0	0	
1 (2)	OP_WEST_EU	West Europe Set (0 - East Europe Set) by default "on"	0	0	0	0	1	0	
0 (1)	OP_MULTI_STANDARD_EUR	For Europe multi standard set	0	0	0	0	1	0	
<LATAM>									
3 (8)	OP_DUMMY6	Not used	0	0	0	0	0	0	
2 (4)	OP_DUMMY7		0	0	0	0	0	0	
1 (2)	OP_SYSTEM_LT_1	00: NTSC-M, 01: NTSC-M, PAL-M, 10: NTSC-M, PAL-M, PAL-N, 11: NTSC-M, PAL-M, PAL-N, PAL-BG	0	0	0	0	0	0	
0 (1)	OP_SYSTEM_LT_2		0	0	0	0	0	0	
<NAFTA & AP-NTSC>									
3 (8)	OP_DUMMY6	Not used	0	0	0	0	0	0	
2 (4)	OP_DUMMY7	Not used	0	0	0	0	0	0	
1 (2)	OP_DUMMY8	Not used	0	0	0	0	0	0	
0 (1)	OP_DUMMY9	Not used	0	0	0	0	0	0	
OP7:			**128**	**148**	**12**	**132**	**3**	**144**	

9. Circuit Descriptions, Abbreviation List, and IC Data Sheets

Index of this chapter:

9.1 Introduction
9.2 Block Diagram
9.3 Power Supply LCD
9.4 Input/Output
9.5 Tuner and IF
9.6 Video: TV Part (diagrams A1, A2, and A3)
9.7 Video: Scaler Part (diagram A7 and A13)
9.8 Audio Processing
9.9 Control
9.10 Abbreviation list
9.11 IC Data Sheets

9.1 Introduction

The LC4.6 LCD TV is a global LCD TV for the year 2004. It is the successor of the LC03 LCD TV and covers screens size 30 inch (in 15:9 ratio) and has a new styling, called Disc.
This chassis has the following (new) features:

- **Audio**: The sound processor is part of the UOC processor (called "Hercules"). The chassis has a FM Radio with 40 preset channels.
- **Video**: Enhanced video features, video drivers, Active Control and multiple PIP.

The architecture consists of a TV and Scaler panel, I/O panel, Side I/O and Local Keyboard panel and Power Supply panel. The functions for video/audio processing, microprocessor (P), and CC/Teletext (TXT) decoder are all combined in one IC (TDA120xx, item 7011), the so-called third generation Ultimate One Chip (UOC-III) or "Hercules". This chip has the following features:

- Control, small signal, mono/stereo, and extensive Audio/ Video switching in one IC.
- Upgrade with digital sound & video processing.
- Alignment free IF, including SECAM-L/L1 and AM.
- FM sound 4.5/5.5/6.0/6.5, no traps/bandpass filters.
- Full multi-standard colour decoder.
- One Xtal reference for all functions (microprocessor, RCP, TXT/CC, RDS, colour decoder, and stereo sound processor).

9.2 Block Diagram

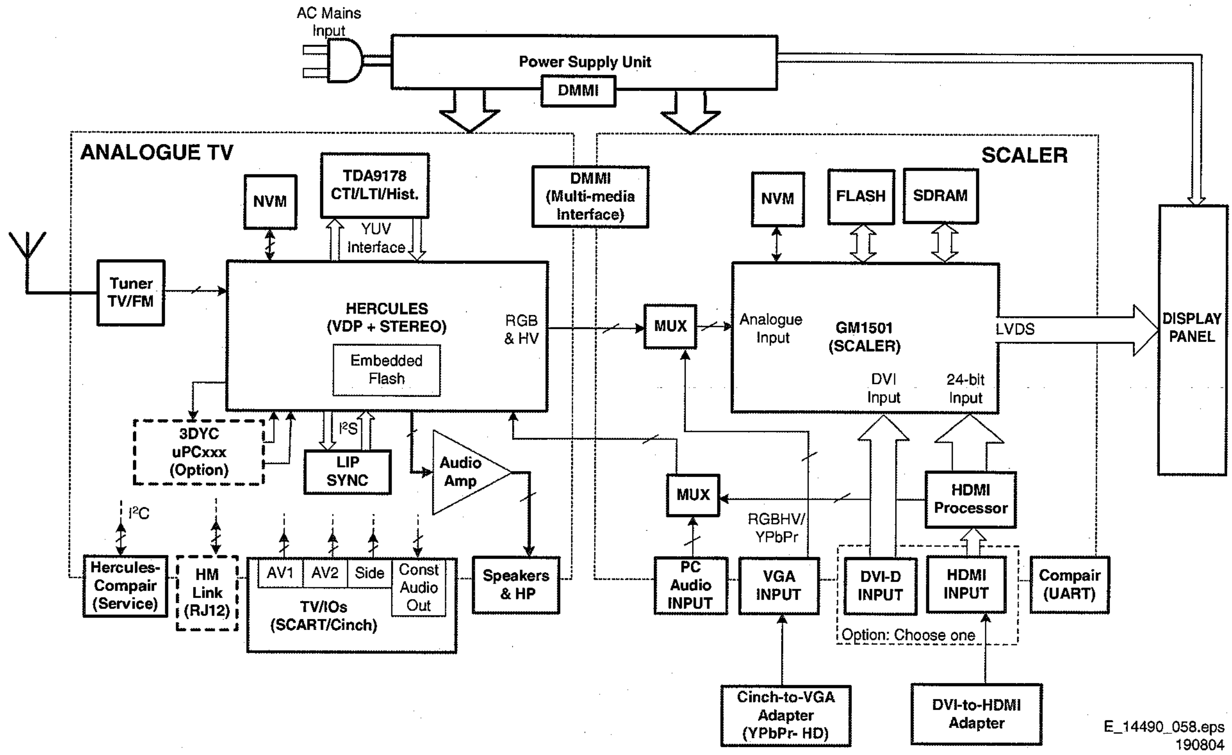

AC Mains Input
Power Supply Unit
DMMI
ANALOGUE TV
SCALER
NVM
TDA9178 CTI/LTI/Hist.
YUV Interface
DMMI (Multi-media Interface)
NVM
FLASH
SDRAM
Tuner TV/FM
HERCULES (VDP + STEREO)
Embedded Flash
RGB & HV
MUX
Analogue Input
GM1501 (SCALER)
LVDS
DVI Input
24-bit Input
DISPLAY PANEL
3DYC uPCxxx (Option)
I²S
LIP SYNC
Audio Amp
MUX
HDMI Processor
RGBHV/ YPbPr
I²C
Hercules-Compair (Service)
HM Link (RJ12)
AV1
AV2
Side
Const Audio Out
TV/IOs (SCART/Cinch)
Speakers & HP
PC Audio INPUT
VGA INPUT
DVI-D INPUT
HDMI INPUT
Compair (UART)
Option: Choose one
Cinch-to-VGA Adapter (YPbPr- HD)
DVI-to-HDMI Adapter
E_14490_058.eps
190804

Figure 9-1 Block Diagram

The PLL tuner UR1316 (with FM radio) delivers the IF-signal, via audio & video SAW-filters, to the Video Signal Processor and FLASH embedded TEXT/Control/Graphics Micro Controller TDA120x1 (item 7011, also called Hercules). This IC has the following functions:

- Analogue Video Processing
- Sound Demodulation
- Audio Interfaces and switching
- Volume and tone control for loudspeakers
- Reflection and delay for loudspeaker channels
- Micro Controller
- Data Capture
- Display

The Hercules has one input for the internal CVBS signal and a video switch with 3 external CVBS inputs and a CVBS output. All CVBS inputs can be used as Y-input for Y/C signals. However, only 2 Y/C sources can be selected because the circuit has 2 chroma inputs. It is possible to add an additional CVBS(Y)/C input (CVBS/YX and CX) when the YUV interface and the RGB/YPRPB input are not needed. Two SCART-connectors are used: SCART1 is fully equipped and SCART2 is meant for VCR. Pin 10 of SCART2 is used for Easylink (P50) and there is a possibility for Y/C in. The CVBS-out on pin 19 can be used for WYSIWYR (What You See Is What You Record).

The video part delivers the RGB signals to the Scaler IC.

The Genesis GM1501 Malibu Scaler IC can receive two video input signals: SDTV (from Hercules), DVI (from external DVI source), or PC (from external computer).
After the video processing, the digital data is send via a Low Voltage Differential Signalling bus to the LCD panel. LVDS is used to improve data speed and to reduce EMI significantly. There are two I^2C lines and two interrupt and communication lines (TV_IRQ and TV_SC_COM) for the Scaler control. The Scaler communicates with the Hercules as a slave device. To avoid buffer overflow at the Scaler side, the TV_SC_COM line provides the necessary hardware flow control. To allow bi-directional communication, the Scaler can initiate a service interrupt-request to the Hercules via the TV_IRQ line.

The Hercules, and EEPROM are supplied with 3.3 V, which is also present during STANDBY.
The EEPROM, or NVM (Non Volatile Memory) is used to store the settings.

The sound part is built up around the Hercules. The Source Selection, Decoding and Processing are all done by the Hercules.

Power supply input are several DC voltages coming from a supply panel.

9.3 Power Supply LCD

See the FTL2.1 manual for a detailed description.

9.4 Input/Output

The I/O is divided over two parts: Rear I/O and Side I/O. The rear has two SCART inputs, a PC (VGA) input, a DVI input, and an Audio input. The side has a CVBS and Y/C (SVHS) input.

EXT1: The input of SCART1 is CVBS + RGB + L/R and the output is the video (+ sound) signal from the tuner (SC1_CVBS_RF_OUT).

EXT2: The input of SCART2 is Y/C + CVBS + L/R. The output signal is CVBS_SC2_MON_OUT (+ sound).
SCART2 is meant for VCR and has therefore some additional signals in relation to EXT1 but no RGB: it has the possibility for Y/C_in: Y_in on pin 20 and Chroma_in on pin 15.
The selection of the external I/O's is controlled by the Hercules.

PC (VGA) in: This input is directly going to the Scaler IC. See paragraph "Video: Scaler Part".

9.5 Tuner and IF

A Philips UR13xx Tuner with second input (for FM Radio) is used in the TV board. The SIF and FM signals are decoded by the Hercules. Tuning is done via I^2C.

9.5.1 Video IF amplifier

The IF-filter is integrated in a SAW (Surface Acoustic Wave) filter. One for filtering IF-video (1328) and one for IF-audio (1330). The type of these filters is depending of the standard(s) that has to be received.

The output of the tuner is controlled via an IF-amplifier with AGC-control. This is a voltage feedback from pin 31 of the Hercules to pin 1 of the tuner. The AGC-detector operates on top sync and top white level. AGC take-over point is adjusted via the service alignment mode "Tuner" -"'AGC". If there is too much noise in the picture, then it could be that the AGC setting is wrong. The AGC-setting could also be mis-aligned if the picture deforms with perfect signal; the IF-amplifier amplifies too much.

9.6 Video: TV Part (diagrams A1, A2, and A3)

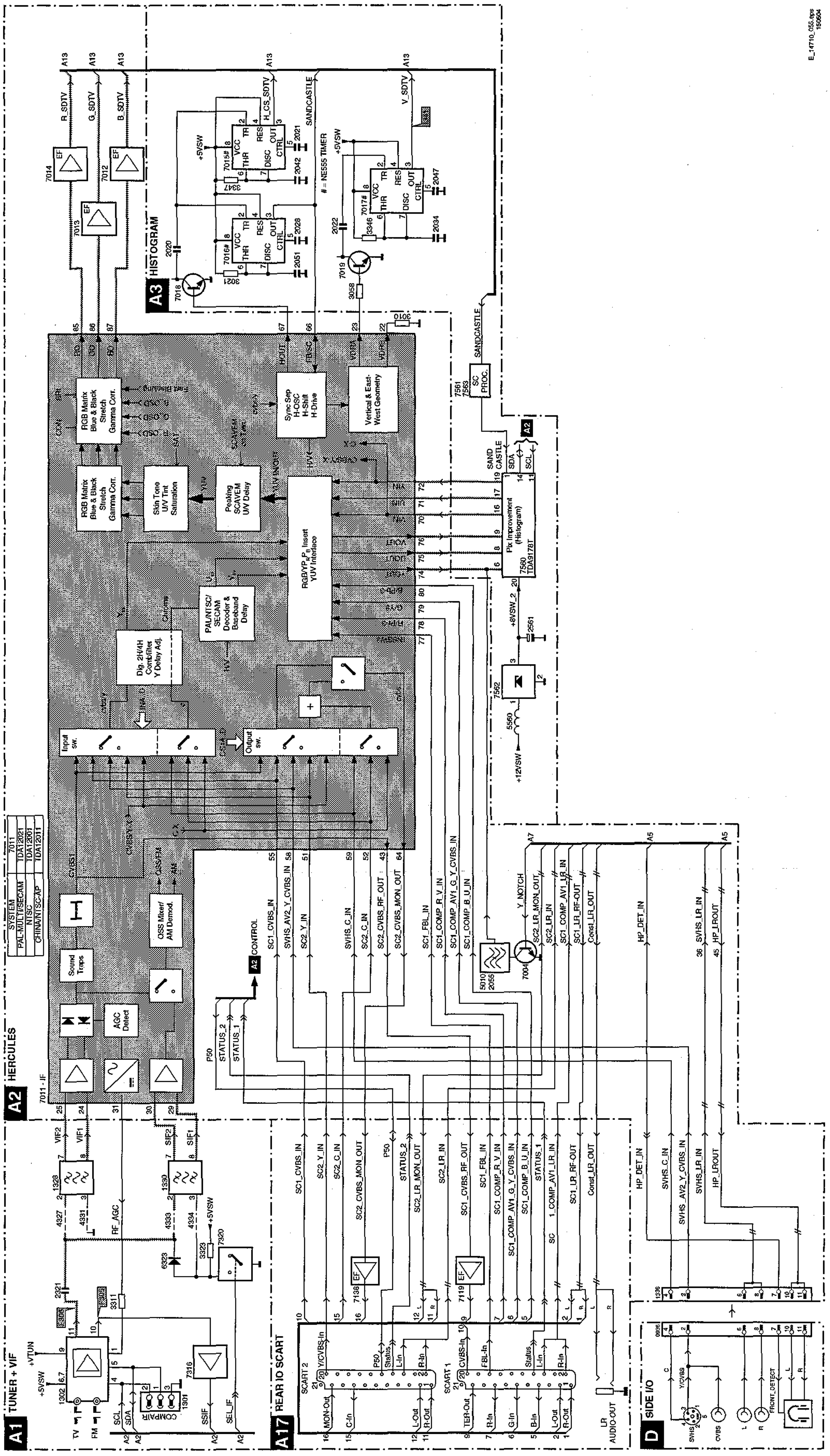

E_14710_055.eps
150604
A1 TUNER + VIF
A2 HERCULES
A3 HISTOGRAM
A17 REAR IO SCART
D SIDE I/O
SYSTEM 7011
PAL/MULTI/SECAM TDA12021
NTSC TDA12001
CHINA/NTSC-AP TDA12011
7011 - IF
Sound Traps
AGC Detect
QSS Mixer/ AM Demod.
Input sw.
Output sw.
Dig. 2H/4H Combfilter Y Delay Adj.
PAL/NTSC/ SECAM Decoder & Baseband Delay
RGB/YP$_B$P$_R$ Insert YUV Interface
Peaking SCAVEM UV Delay
Skin Tone UV Tint Saturation
RGB Matrix Blue & Black Stretch Gamma Corr.
Sync Sep H-OSC H-Shift H-Drive
Vertical & East-West Geometry
Pix Improvement (Histogram) 7560 TDA9178T
SC PROC. 7561 7563
# = NE555 TIMER
7015# 7016# 7017#
7018 7019
7012 7013 7014
R_SDTV
G_SDTV
B_SDTV
H_CS_SDTV
V_SDTV
SANDCASTLE
A13
A2 CONTROL
P50
STATUS_2
STATUS_1
SC1_CVBS_IN
SVHS_AV2_Y_CVBS_IN
SC2_Y_IN
SVHS_C_IN
SC2_C_IN
SC2_CVBS_RF_OUT
SC2_CVBS_MON_OUT
SC1_FBL_IN
SC1_COMP_R_V_IN
SC1_COMP_AV1_G_Y_CVBS_IN
SC1_COMP_B_U_IN
Y_NOTCH
SC2_LR_MON_OUT
SC2_LR_IN
SC1_COMP_AV1_LR_IN
SC1_LR_RF-OUT
Cond_LR_OUT
HP_DET_IN
SVHS_LR_IN
HP_LROUT
A5
A7
+5VSW
+8VSW_2
+12VSW
+VTUN
VIF1
VIF2
SIF1
SIF2
RF_AGC
SSIF
SEL_IF
SCL
SDA
TV
FM
COMPAIR
1302
1328
1330
7316
7320
SCART 2
SCART 1
LR AUDIO OUT
CVBS
SVHS
FRONT_DETECT
0936
1936

Figure 9-2 Block diagram video processing

The video processing is completely handled by the Hercules
- IF demodulator.
- Chrominance decoder
- Sync separator.
- Horizontal & vertical drive.
- RGB processing.
- CVBS and SVHS source select.

It has also build in features like:
- CTI.
- Black stretch.
- Blue stretch.
- White stretch.
- Slow start up.
- Dynamic skin tone correction etc.

Further, it also incorporates sound IF traps and filters, and requires only one crystal for all systems.

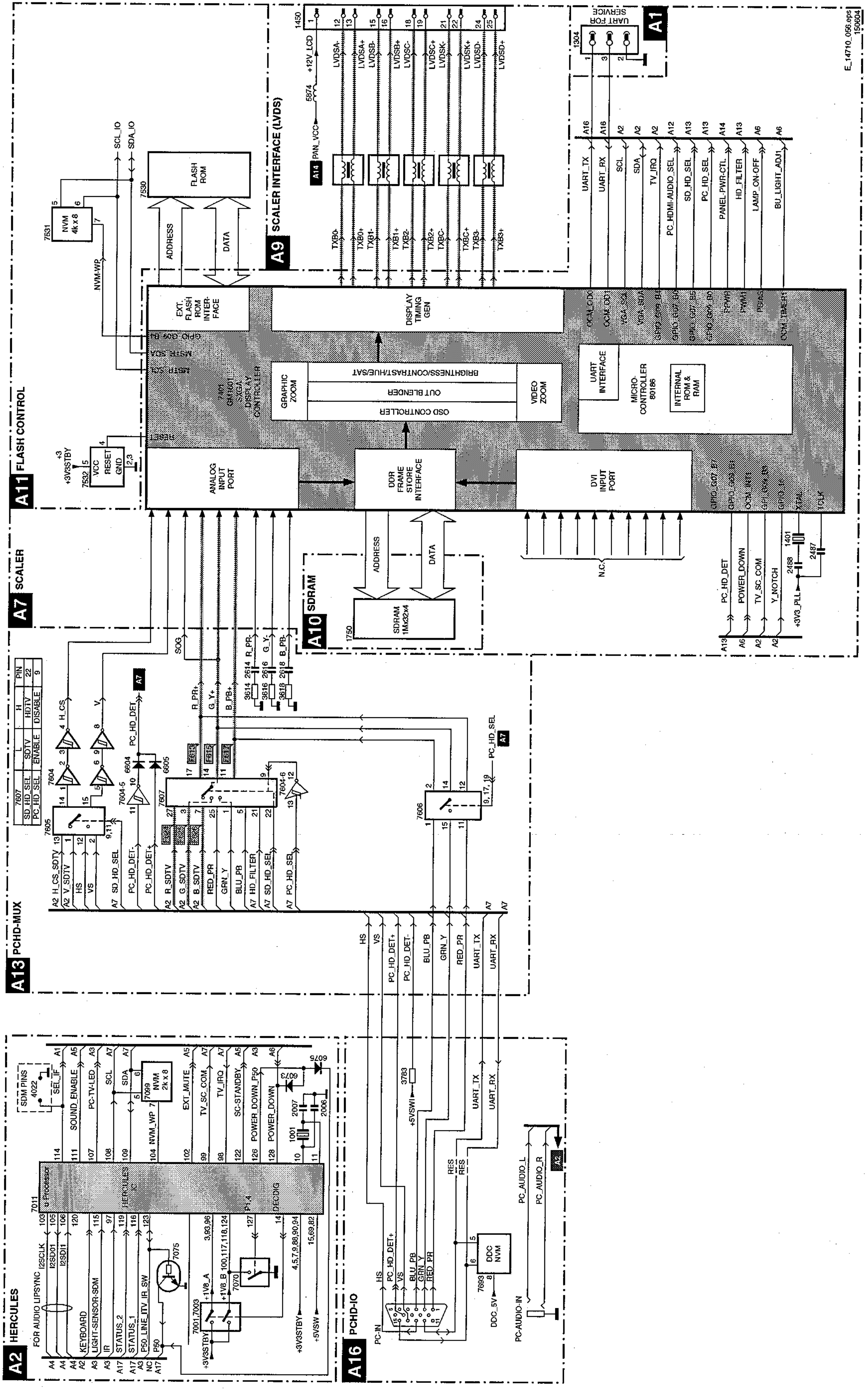
9.6.1 Histogram (YUV picture improvement) IC

The demodulated video-signal can be checked on pins 74, 75, and 76 of IC7011 and is fed to pins 70, 71, and 72. In this path, the Histogram IC TDA9171 is inserted.
This TDA9178 can control various picture improvements:
- Histogram processing.
- Colour transient improvement.
- Luminance transient improvement.
- Black and white stretch.
- Skin tone correction.
- Green enhancement.
- Blue stretch.
- Smart peaking.
- Video dependent coring.
- Colour dependent stretching.

Since the TDA9171 is connected to the Hercules, picture improvement works only for signals that are routed trough the Hercules and not for signals directly connected to the Scaler.

9.7 Video: Scaler Part (diagram A7 and A13)

The Genesis gm1501 Scaler is a dual channel graphics and video processing IC for LCD monitors and televisions incorporating Picture in Picture, up to SXGA output resolutions. The Scaler controls the display processing in an LCD TV, e.g. like the deflection circuit in a CRT-based TV. It controls all the view modes (e.g. like "zooming" and "shifting"). Features like PC (VGA) or HD inputs, are also handled by this part.



TO LCD PANEL
1450
A1
UART FOR SERVICE
1304
E_14710_056.eps 150604
A9 SCALER INTERFACE (LVDS)
A14 PAN_VCC
5974
+12V_LCD
LVDSA-
LVDSA+
LVDSB-
LVDSB+
LVDSC-
LVDSC+
LVDSK-
LVDSK+
LVDSD-
LVDSD+
TXB0-
TXB0+
TXB1-
TXB1+
TXB2-
TXB2+
TXBC-
TXBC+
TXB3-
TXB3+
UART_TX
UART_RX
SCL
SDA
TV_IRQ
PC_HDMI-AUDIO_SEL
SD_HD_SEL
PC_HD_SEL
PANEL_PWR-CTL
HD_FILTER
LAMP_ON-OFF
BU_LIGHT_ADJ1
A11 FLASH CONTROL
NVM 4K x 8
7531
7530
FLASH ROM
SCL_IO
SDA_IO
NVM-WP
ADDRESS
DATA
+3V3STBY
7532
VCC
RESET
GND
EXT. FLASH ROM INTERFACE
DISPLAY TIMING GEN
MSTR_SCL
MSTR_SDA
RESET
7401 GM1601 SXGA DISPLAY CONTROLLER
GRAPHIC ZOOM
BRIGHTNESS/CONTRAST/HUE/SAT
OUT BLENDER
OSD CONTROLLER
VIDEO ZOOM
UART INTERFACE
MICRO-CONTROLLER 80186
INTERNAL ROM & RAM
ANALOG INPUT PORT
DDR FRAME STORE INTERFACE
DVI INPUT PORT
A7 SCALER
A10 SDRAM
1750
SDRAM 1Mx32x4
N.C.
PC_HD_DET
POWER_DOWN
TV_SC_COM
Y_NOTCH
+3V3_PLL
1401
2488
2487
XTAL
TCLK
A13 PCHD-MUX
7607 SD_HD_SEL
PC_HD_SEL
L SDTV ENABLE
H HDTV DISABLE
PIN 22 9
7605
7604
7606
7607
H_CS
V
SOG
R_PR+
G_Y+
B_PB+
R_PR-
G_Y-
B_PB-
H_CS_SDTV
V_SDTV
HS
VS
SD_HD_SEL
PC_HD_DET-
PC_HD_DET+
R_SDTV
G_SDTV
B_SDTV
RED_PR
GRN_Y
BLU_PB
HD_FILTER
PC_HD_SEL
6604
6605
A2 HERCULES
SDM PINS
4022
SEL_IF
7011 u Processor HERCULES IC
FOR AUDIO LIPSYNC
I2SCLK
I2SD01
I2SDI1
KEYBOARD
LIGHT-SENSOR-SDM
IR
STATUS_2
STATUS_1
P50_LINE_ITV_IR_SW
P50
SOUND_ENABLE
PC-TV-LED
SCL
SDA
NVM_WP
7099 NVM 2k x 8
EXT_MUTE
TV_SC_COM
TV_IRQ
SC-STANDBY
POWER_DOWN_P50
POWER_DOWN
7075
7001,7003
7070
+3V3STBY
+1V8_A
+1V8_B
+5VSW
DECDIG
1001
2006
2007
6073
6075
A16 PCHD-IO
PC-IN
HS
VS
PC_HD_DET+
BLU_PB
GRN_Y
RED_PR
3783
+5VSWI
7693 DDC NVM
DDC_5V
RES
PC_AUDIO_L
PC_AUDIO_R
PC-AUDIO-IN

Figure 9-3 Block diagram Scaler Part

9.7.1 Features

The Scaler provides several key IC functions:

- Scaling.
- Auto-configuration/ Auto-Detection.
- Various Input Ports:
  - Analog RGB.
  - Video Graphics.
- Integrated LVDS Transmitter.
- On-chip Micro-controller

9.7.2 Inputs

Analog RGB

The RGB input is fed to pins B2, C2 and D2. This input consists of either the Hercules RGB output or the RGB/YpbPr input of the VGA connector. The Scaler can switch between the two signals via the PC_HD_SEL signal and selection IC SM5301.

PC (VGA) input

The VGA input is processed by the VGA block of the Scaler. The Scaler supports pixel frequencies up to 165MHz. YpbPr format is also supported via the VGA interface and covers a resolution of 480p/560p/720p/1080i.

9.7.3 Output

The Display Output Port provides data and control signals that permit the Scaler to connect to a variety of display devices using a TTL or LVDS interface. The output interface is configurable for single or dual wide TTL/LVDS in 18, 24 or 30-bit RGB pixels format. All display data and timing signals are synchronous with the DCLK output clock. The integrated LVDS transmitter is programmable to allow the data and control signals to be mapped into any sequence depending on the specified receiver format.

9.8 Audio Processing

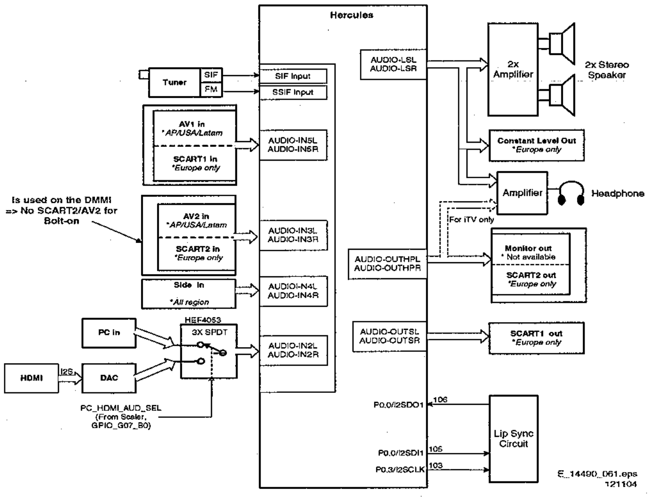

Hercules
Tuner
SIF
FM
SIF Input
SSIF Input
AV1 in
*AP/USA/Latam
SCART1 in
*Europe only
AUDIO-IN5L
AUDIO-IN5R
Is used on the DMMI
=> No SCART2/AV2 for
Bolt-on
AV2 in
*AP/USA/Latam
SCART2 in
*Europe only
AUDIO-IN3L
AUDIO-IN3R
Side In
*All region
AUDIOI-N4L
AUDIO-IN4R
PC In
HEF4053
3X SPDT
HDMI
I2S
DAC
AUDIO-IN2L
AUDIO-IN2R
PC_HDMI_AUD_SEL
(From Scaler,
GPIO_G07_B0)
AUDIO-LSL
AUDIO-LSR
2x
Amplifier
2x Stereo
Speaker
Constant Level Out
*Europe only
Amplifier
Headphone
For iTV only
AUDIO-OUTHPL
AUDIO-OUTHPR
Monitor out
* Not available
SCART2 out
*Europe only
AUDIO-OUTSL
AUDIO-OUTSR
SCART1 out
*Europe only
P0.0/I2SDO1
106
P0.0/I2SDI1
105
P0.3/I2SCLK
103
Lip Sync
Circuit
E_14490_061.eps
121104

Figure 9-4 Block diagram audio processing

The audio decoding is done entirely via the Hercules. The IF output from the Tuner is fed directly to either the Video-IF or the Sound-IF input depending on the type of concept chosen. There are mainly two types of decoder in the Hercules, an analogue decoder that decodes only Mono, regardless of any standards, and a digital decoder (or DEMDEC) that can decode both Mono as well as Stereo, again regardless of any standards.

In this chassis, the analogue decoder is used in two cases:

- It is used for AM Sound demodulation in the Europe SECAM LL' transmission.
- It is used for all FM demodulation in AV-Stereo sets.

9.8.1 Diversity

The diversity for the Audio decoding can be broken up into two main concepts:

- The Quasi Split Sound concept used in Europe and some AP sets.
- The Inter Carrier concept, used in NAFTA and LATAM.

The UOC-III family makes no difference any more between QSS- and Intercarrier IF, nearly all types are software-switchable between the two SAW-filter constructions.

Simple data settings are required for the set to determine whether it is using the Inter Carrier or the QSS concept. These settings are done via the "QSS" and "FMI" bit found in SAM mode. Due to the diversity involved, the data for the 2 bits are being placed in the NVM location and it is required to write once during start-up.

On top of that, it can be further broken down into various systems depending on the region. The systems or region chosen, will in turn affect the type of sound standard that is/are allowed to be decoded.

- For the case of Europe, the standard consists of BG/DK/I/LL' for a Multi-System set. There are also versions of Eastern Europe and Western Europe set and the standard for decoding will be BG/DK and I/DK respectively. FM Radio is a feature diversity for the Europe sets. The same version can have either FM Radio or not, independent of the system (e.g. sets with BG/DK/I/LL' can have or not have FM radio).
- For the case of NAFTA and LATAM, there is only one transmission standard, which is the M standard. The diversity then will be based on whether it has a dBx noise reduction or a Non-dBx (no dBx noise reduction).
- For the case of AP, the standard consists of BG/DK/I/M for a Multi-System set. The diversity here will then depends on the region. AP China can have a Multi-System and I/DK version. For India, it might only be BG standard.

9.8.2 Functionality

The features available in the Hercules are as follows:

- Treble and Bass Control.
- Surround Sound Effect that includes:
  - Incredible Stereo.
  - Incredible Mono.
  - 3D Sound (not for AV Stereo).
  - TruSurround (not for AV Stereo).
  - Virtual Dolby Surround, VDS422 (not for AV Stereo).
  - Virtual Dolby Surround, VDS423 (not for AV Stereo).
  - Dolby Pro-Logic (not for AV Stereo).
- Bass Feature that includes:
  - Dynamic Ultra-Bass.
  - Dynamic Bass Enhancement.
  - BBE (not for AV Stereo).
- Auto-Volume Leveller.
- 5 Band Equalizer.
- Loudness Control.

All the features stated are available for the Full Stereo versions and limited features for the AV Stereo

9.8.3 Audio Amplifier

The audio amplifier part is very straightforward. It uses the integrated power amplifier TDA7297D, and delivers a maximum output of 2 x 15 W_{RMS}.

The maximum operating condition for this amplifier is 20 V unloaded. Normal operating supply is from 6.5 V to 18 V. Muting is done via the SOUND_ENABLE line connected to pin 13 of the amplifier-IC and coming from the Hercules.

9.8.4 Audio: Lip Sync (Optional)

A “lip sync” circuit with an audio delay can be added (not for all models/regions), in order to synchronise with video delay due to the complexity of the display processing. This video delay is significant, due to memory based processing. For instance, the “frame rate conversion” cause a delay of two frames, while the LCD panel response also cause a delay.

The circuit is a (16 bit) FIFO based digital delay. E.g.: the memory size required for a 80 ms delay (with a data clock of 1.024 MHz) can be calculated with: Memory size = delay time * f_clk. This gives: 80 ms * 1.024 MHz = 81920 bits.

To calculate the memory size for a 16 bits mode I2S digital audio stream we must use the following data:
- f_s = 32 kHz, 16 bits, stereo
- Data clock = 32 kHz * 16 * 2 = 1.024 MHz
- Memory size for 1 ms delay = 1 ms * 1.024 MHz = 1024 bits = 1 kbit

So, the delay time of 80 ms can be built with five steps of 16 ms, which is close to the frame rate. Therefore, a 128 kbit SRAM (16 x 8) is chosen.

Note that above described calculation is just an example, values in the set can deviate.

9.9 Control

9.9.1 Hercules

The System Board has two main micro-controllers on board. These are:
- On-chip x86 micro-controller (OCM) from Genesis LCD TV/ Monitor Controller.
- On-chip 80C51 micro-controller from Philips Semiconductor UOCIII (Hercules) series.

Each micro-controller has it own I^2C bus which host its own internal devices.
The Hercules is integrated with the Video and Audio Processor. For dynamic data storage, such as SMART PICTURE and SMART SOUND settings, an external NVM IC is being used. Another feature includes an optional Teletext/Closed Caption decoder with the possibility of different page storage depending on the Hercules type number.

The Micro Controller ranges in ROM from 128 kB with no TXT-decoder to 128 kB with a 10 page Teletext or with Closed Caption.

9.9.2 Block Diagram

The block diagram of the Micro Controller application is shown below.

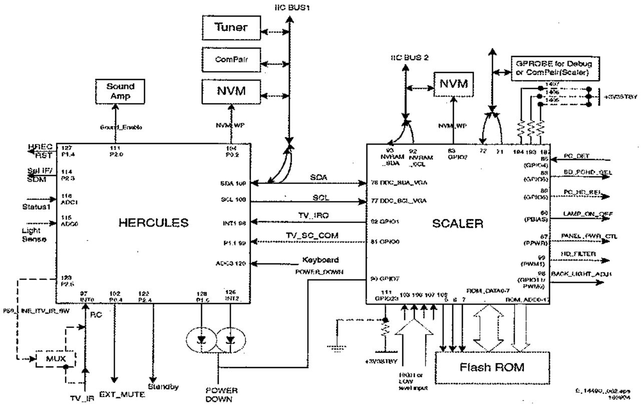

IIC BUS1
Tuner
ComPair
NVM
Sound Amp
Sound_Enable
NVM_WP
HREC RST
Sel IF/ SDM
Status1
Light Sense
127 P1.4
111 P2.0
104 P0.2
114 P2.3
116 ADC1
115 ADC0
HERCULES
SDA 109
SCL 108
INT1 98
P1.1 99
ADC3 120
123 P2.5
97 INT0
102 P0.4
122 P2.4
128 P1.5
126 INT2
P50_ INF_ITV_IR_SW
RC
MUX
TV_IR
EXT_MUTE
Standby
POWER DOWN
SDA
SCL
TV_IRQ
TV_SC_COM
Keyboard
POWER_DOWN
IIC BUS 2
NVM
NVM_WP
GPROBE for Debug or ComPair(Scaler)
1407
1406
1405
+3V3STBY
93 NVRAM _SDA
92 NVRAM _SCL
83 GPIO2
72
71
104 103 187
85 (GPIO4)
88 (GPIO5)
89 (GPIO6)
80 (PBIAS)
67 (PPWR)
99 (PWM1)
98 (GPIO11/ PWM0)
PC_DET
SD_PCHD_SEL
PC_HD_SEL
LAMP_ON_OFF
PANEL_PWR_CTL
HD_FILTER
BACK_LIGHT_ADJ
78 DDC_SDA_VGA
77 DDC_SCL_VGA
92 GPIO1
81 GPIO0
90 GPIO7
SCALER
111 GPIO23
103 106 107 108
5 6 7
ROM_DATA0-7
ROM_ADD0-17
+3V3STBY
HIGH or LOW level input
Flash ROM
E_14490_002.eps 160904

Figure 9-5 Micro Controller block diagram

9.9.3 Basic Specification

The Micro Controller operates at the following supply voltages:
- +3.3 V_{DC} at pins 4, 88, 94, and 109.
- +1.8 V_{DC} at pins 93, 96, and 117.
- I^2C pull up supply: +3.3V_{DC}.

9.9.4 Pin Configuration and Functionality

The ports of the Micro Controller can be configured as follows:
- A normal input port.
- An input ADC port.
- An output Open Drain port.
- An output Push-Pull port.
- An output PWM port.
- Input/Output Port

The following table shows the ports used for the L04 control:

Table 9-1 Micro Controller ports overview

Pin	Name	Description	Configuration
97	INT0/ P0.5	IR	INT0
98	P1.0/ INT1	TV_IRQ	INT2
99	P1.1/ T0	TV_SC_COM	P1.1
102	P0.4/ I^2SWS	EXT_MUTE	P0.4
103	P0.3/ I^2SCLK	Lip Sync	I^2SCLK
104	P0.2/ I^2SDO2	NVM_WP	P0.2
105	P0.1/ I^2SDO1	Lip Sync	I^2SDO1
106	P0.0/ I^2SDI/O	Lip Sync	I^2SDI/O
107	P1.3/ T1	PC-TV_LED	P1.3
108	P1.6/ SCL	SCL	SCL
109	P1.7/ SDA	SDA	SDA
111	P2.0/ TPWM	SOUND_ENABLE	P2.0
112	P2.1/ PWM0	(for future use)	-
113	P2.2/ PWM1	(for future use)	-
114	P2.3/ PWM2	SEL_IF	P2.3
115	P3.0/ ADC0	Light Sensor - SDM	ADC0
116	P3.1/ ADC1	STATUS_1	ADC1
119	P3.2/ ADC2	STATUS_2	ADC2
120	P3.3/ ADC3	KEYBOARD	ADC3
122	P2.4/ PWM3	STANDBY	P2.4
123	P2.5/ PWM4	(for future use)	-
126	P1.2/ INT2	(for future use)	-
127	P1.4/ RX	HERC_RESET	-
128	P1.5/ TX	POWER_DOWN	P1.5

The description of each functional pin is explained below:

- **LED.** This signal is used as an indication for the Stand-by, Remote and Error Indicator. Region diversity:
  - During protection mode, the LED blinks and the set is in stand-by mode.
  - During error conditions it blinks at a predefined rate.
  - After receiving a valid RC-5 or local keyboard command it flashes once.
  - For sets with error message indication, the LED blinks when message is active and the set is in stand-by mode.
- **SCL.** This is the clock wire of the two-wire single master bi-directional I^2C bus.
- **SDA.** This is the data wire of the two-wire single master bi-directional I^2C bus.
- **STANDBY.** The Hercules generates this signal. This can enable the power supply in normal operation and disable it during Stand-by. It is of logic "high" (3.3 V) under normal operation and "low" (0 V) during Stand-by.
- **IR.** This input pin is connected to an RC5 remote control receiver.
- **SEL-IF.** This is an output pin to switch the Video SAW filter between M system and other systems.
  - 0: NTSC M (default)
  - 1: PAL B/G, DK, I, L
- **NVM_WP.** The global protection line is used to enable and disable write protection to the NVM. When write to the NVM is required, pin 7 of the NVM must be pulled to logic '0' first (via Write_Protect of the micro-controller pin) before a write is performed. Otherwise pin 7 of NVM must always be at logic "1"
  - 0: Disabled
  - 1: Enabled (default)
- **SOUND_ENABLE.** This pin is use to MUTE the audio amplifier. It is configured as push pull.
- **STATUS_1.** This signal is used to read the status of the SCART 1 input.
- **STATUS_2.** This signal is used to read the status of the SCART 2 input.
- **HERC_RESET.** This pin is use to switch the +1.8V supply.
- POWER_DOWN. The power supply generates this signal. Logic "high" (3.3 V) under normal operation of the TV and goes "low" (0 V) when the Mains input voltage supply goes below 70 V_{AC}.
- Keyboard. Following are the Keyboard functions and the step values (8 bit) for it.

Table 9-2 Local keyboard values

Function	Voltage (V_{DC})	Step values (8 bit)
NAFTA Stand-by	0	0 - 6
Ch +	0.43	7 - 33
Exit Factory (Ch- and Vol-)	0.69	34 - 53
Ch -	0.93	54 - 73
Menu (Vol - and Vol +)	1.19	74 - 96
Vol -	1.49	97 - 121
DVD Eject	1.8	122 - 147
Vol +	2.12	148 - 169

- **TV_IRQ.** This signal is the interrupt from the Scaler IC.
- **TV_SC_COM.** This signal is used for the communication with the Scaler IC.
- **EXT_MUTE.** This signal is used to reduce the Switch-off plop.

9.10 Abbreviation list

0/6/12	SCART switch control signal on A/V board. 0 = loop through (AUX to TV), 6 = play 16:9 format, 12 = play 4:3 format
1080i	1080 visible lines, interlaced
1080p	1080 visible lines, progressive scan
2CS	2 Carrier Stereo
480i	480 visible lines, interlaced
480p	480 visible lines, progressive scan
ACI	Automatic Channel Installation: algorithm that installs TV channels directly from a cable network by means of a predefined TXT page
ADC	Analogue to Digital Converter
AFC	Automatic Frequency Control: control signal used to tune to the correct frequency
AGC	Automatic Gain Control: algorithm that controls the video input of the feature box
AM	Amplitude Modulation
AP	Asia Pacific
AR	Aspect Ratio: 4 by 3 or 16 by 9
ASD	Automatic Standard Detection
AV	Audio Video
B-SC1-IN	Blue SCART1 in
B-SC2-IN	Blue SCART2 in
B-TXT	Blue teletext
B/G	Monochrome TV system. Sound carrier distance is 5.5 MHz
BOCMA	Bimos one Chip Mid-end Architecture: video and chroma decoder
C-FRONT	Chrominance front input
CBA	Circuit Board Assembly (or PWB)
CL	Constant Level: audio output to connect with an external amplifier
CLUT	Colour Look Up Table
ComPair	Computer aided rePair
CSM	Customer Service Mode
CVBS	Composite Video Blanking and Synchronisation
CVBS-EXT	CVBS signal from external source (VCR, VCD, etc.)
CVBS-INT	CVBS signal from Tuner
CVBS-MON	CVBS monitor signal
CVBS-TER-OUT	CVBS terrestrial out
DAC	Digital to Analogue Converter
DBE	Dynamic Bass Enhancement: extra low frequency amplification
DFU	Directions For Use: owner's manual
DNR	Dynamic Noise Reduction
DRAM	Dynamic RAM
DSP	Digital Signal Processing
DST	Dealer Service Tool: special (European) remote control designed for service technicians
DTS	Digital Theatre Sound
DVD	Digital Video Disc
EEPROM	Electrically Erasable and Programmable Read Only Memory
EPG	Electronic Program Guide: system used by broadcasters to transmit TV guide information (= NexTView)
EU	EUrope
EXT	EXTernal (source), entering the set by SCART or by cinches (jacks)
FBL	Fast Blanking: DC signal accompanying RGB signals
FBL-SC1-IN	Fast blanking signal for SCART1 in
FBL-SC2-IN	Fast blanking signal for SCART2 in
FBL-TXT	Fast Blanking Teletext
FLASH	FLASH memory

FM	Field Memory / Frequency Modulation
FMR	FM Radio
FRC	Frame Rate Converter
FRONT-C	Front input chrominance (SVHS)
FRONT-DETECT	Front input detection
FRONT-Y_CVBS	Front input luminance or CVBS (SVHS)
G-SC1-IN	Green SCART1 in
G-SC2-IN	Green SCART2 in
G-TXT	Green teletext
H	H_sync to the module
HA	Horizontal Acquisition: horizontal sync pulse coming out of the BOCMA
HD	High Definition
HP	Head Phone
I	Monochrome TV system. Sound carrier distance is 6.0 MHz
I^2C	Integrated IC bus
I^2S	Integrated IC Sound bus
IC	Integrated Circuit
IF	Intermediate Frequency
Interlaced	Scan mode where two fields are used to form one frame. Each field contains half the number of the total amount of lines. The fields are written in "pairs", causing line flicker.
IR	Infra Red
IRQ	Interrupt ReQuest
Last Status	The settings last chosen by the customer and read and stored in RAM or in the NVM. They are called at start-up of the set to configure it according the customers wishes
LATAM	LATin AMerica
LC04	Philips chassis name for LCD TV 2004 project
LCD	Liquid Crystal Display
LED	Light Emitting Diode
LINE-DRIVE	Line drive signal
L/L'	Monochrome TV system. Sound carrier distance is 6.5 MHz. L' is Band I, L is all bands except for Band I
LS	Loud Speaker
LVDS	Low Voltage Differential Signalling, data transmission system for high speed and low EMI communication.
M/N	Monochrome TV system. Sound carrier distance is 4.5 MHz
MOSFET	Metal Oxide Semiconductor Field Effect Transistor
MPEG	Motion Pictures Experts Group
MSP	Multi-standard Sound Processor: ITT sound decoder
MUTE	MUTE Line
NC	Not Connected
NICAM	Near Instantaneous Compounded Audio Multiplexing. This is a digital sound system, used mainly in Europe.
NTSC	National Television Standard Committee. Colour system used mainly in North America and Japan. Colour carrier NTSC M/N = 3.579545 MHz, NTSC 4.43 = 4.433619 MHz (this is a VCR norm, it is not transmitted off-air)
NVM	Non Volatile Memory: IC containing TV related data (for example, options)
O/C	Open Circuit
ON/OFF LED	On/Off control signal for the LED
OSD	On Screen Display
P50	Project 50 communication: protocol between TV and peripherals
PAL	Phase Alternating Line. Colour system used mainly in Western Europe (colour carrier = 4.433619 MHz) and South America (colour carrier PAL M = 3.575612 MHz and PAL N = 3.582056 MHz)
PC	Personal Computer
PCB	Printed Circuit Board (or PWB)
PIG	Picture In Graphic
PIP	Picture In Picture
PLL	Phase Locked Loop. Used, for example, in FST tuning systems. The customer can directly provide the desired frequency
Progressive Scan	Scan mode where all scan lines are displayed in one frame at the same time, creating a double vertical resolution.
PWB	Printed Wiring Board (or PCB)
RAM	Random Access Memory
RC	Remote Control transmitter
RC5	Remote Control system 5, the signal from the remote control receiver
RGB	Red, Green, and Blue. The primary colour signals for TV. By mixing levels of R, G, and B, all colours (Y/C) are reproduced.
RGBHV	Red, Green, Blue, Horizontal sync, and Vertical sync
ROM	Read Only Memory
SAM	Service Alignment Mode
SIF	Sound Intermediate Frequency
SC	SandCastle: two-level pulse derived from sync signals
SC1-OUT	SCART output of the MSP audio IC
SC2-B-IN	SCART2 Blue in
SC2-C-IN	SCART2 chrominance in
SC2-OUT	SCART output of the MSP audio IC
S/C	Short Circuit
SCART	Syndicat des Constructeurs d'Appareils Radiorecepteurs et Televisieurs
SCL	CLock Signal on I^2C bus
SD	Standard Definition
SDA	DAta Signal on I^2C bus
SDRAM	Synchronous DRAM
SECAM	SEequence Couleur Avec Memoire. Colour system used mainly in France and Eastern Europe. Colour carriers = 4.406250 MHz and 4.250000 MHz
SIF	Sound Intermediate Frequency
SMPS	Switch Mode Power Supply
SND	SouND
SNDL-SC1-IN	Sound left SCART1 in
SNDL-SC1-OUT	Sound left SCART1 out
SNDL-SC2-IN	Sound left SCART2 in
SNDL-SC2-OUT	Sound left SCART2 out
SNDR-SC1-IN	Sound right SCART1 in
SNDR-SC1-OUT	Sound right SCART1 out
SNDR-SC2-IN	Sound right SCART2 out
SNDR-SC2-OUT	Sound right SCART2 out
SNDS-VL-OUT	Surround sound left variable level out
SNDS-VR-OUT	Surround sound right variable level out
SOPS	Self Oscillating Power Supply
S/PDIF	Sony Philips Digital InterFace
SRAM	Static RAM
STBY	Stand-by
SVHS	Super Video Home System
SW	Sub Woofer / SoftWare
THD	Total Harmonic Distortion
TXT	TeleteXT
uP	Microprocessor
VA	Vertical Acquisition
VL	Variable Level out: processed audio output toward external amplifier
VCR	Video Cassette Recorder
VGA	Video Graphics Array
WD	Watch Dog

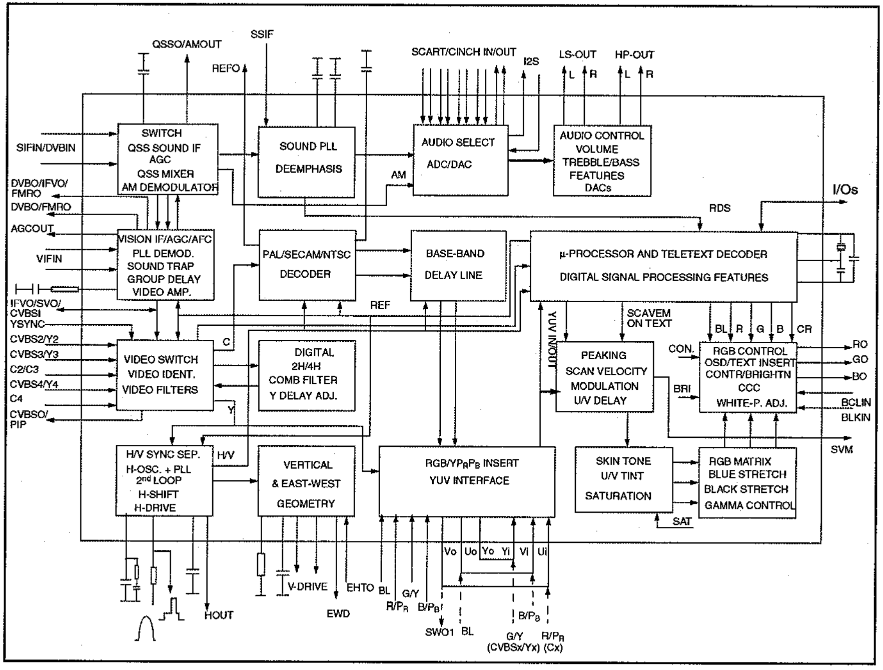
WYSIWYR	What You See Is What You Record: record selection that follows main picture and sound
XTAL	Quartz crystal
YPbPr	Component video (Y= Luminance, Pb/Pr= Colour difference signals)
Y/C	Luminance (Y) and Chrominance (C) signal
Y-OUT	Luminance-signal
YUV	Component video

9.11 IC Data Sheets

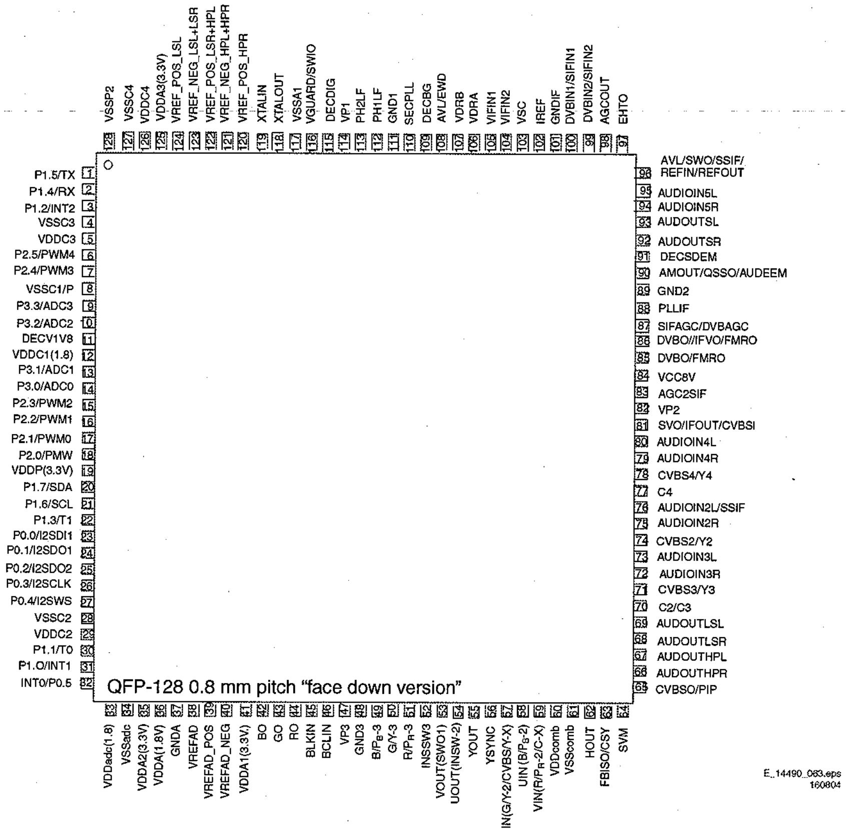
This section shows the internal block diagrams and pin layouts of ICs that are drawn as "black boxes" in the electrical diagrams (with the exception of "memory" and "logic" ICs).

9.11.1 Diagram A2, Type TDA12029H (IC7011)

Block diagram of the "AV-stereo" TV processor with audio DSP


QSSO/AMOUT
SSIF
REFO
SCART/CINCH IN/OUT
I2S
LS-OUT
HP-OUT
L
R
L
R
SIFIN/DVBIN
DVBO/IFVO/FMRO
DVBO/FMRO
SWITCH
QSS SOUND IF
AGC
QSS MIXER
AM DEMODULATOR
SOUND PLL
DEEMPHASIS
AM
AUDIO SELECT
ADC/DAC
AUDIO CONTROL
VOLUME
TREBBLE/BASS
FEATURES
DACs
I/Os
RDS
AGCOUT
VIFIN
VISION IF/AGC/AFC
PLL DEMOD.
SOUND TRAP
GROUP DELAY
VIDEO AMP.
PAL/SECAM/NTSC
DECODER
BASE-BAND
DELAY LINE
μ-PROCESSOR AND TELETEXT DECODER
DIGITAL SIGNAL PROCESSING FEATURES
IFVO/SVO/CVBSI
YSYNC
REF
YUV IN/OUT
SCAVEM
ON TEXT
BL
R
G
B
CR
CVBS2/Y2
CVBS3/Y3
C2/C3
CVBS4/Y4
C4
CVBSO/PIP
C
VIDEO SWITCH
VIDEO IDENT.
VIDEO FILTERS
Y
DIGITAL
2H/4H
COMB FILTER
Y DELAY ADJ.
PEAKING
SCAN VELOCITY
MODULATION
U/V DELAY
CON.
BRI
RGB CONTROL
OSD/TEXT INSERT
CONTR/BRIGHTN
CCC
WHITE-P. ADJ.
RO
GO
BO
BCLIN
BLKIN
SVM
H/V SYNC SEP.
H-OSC. + PLL
2nd LOOP
H-SHIFT
H-DRIVE
H/V
VERTICAL
& EAST-WEST
GEOMETRY
RGB/YPRPB INSERT
YUV INTERFACE
SKIN TONE
U/V TINT
SATURATION
RGB MATRIX
BLUE STRETCH
BLACK STRETCH
GAMMA CONTROL
SAT
Vo
Uo
Yo
Yi
Vi
Ui
V-DRIVE
EHTO
BL
G/Y
R/PR
B/PB
SWO1
BL
B/PB
G/Y
R/PR
(CVBSx/Yx)
(Cx)
HOUT
EWD

Pin configuration "stereo" and "AV-stereo" versions with Audio DSP


128 VSSP2
127 VSSC4
126 VDDC4
125 VDDA3(3.3V)
124 VREF_POS_LSL
123 VREF_NEG_LSL+LSR
122 VREF_POS_LSR+HPL
121 VREF_NEG_HPL+HPR
120 VREF_POS_HPR
119 XTALIN
118 XTALOUT
117 VSSA1
116 VGUARD/SWIO
115 DECDIG
114 VP1
113 PH2LF
112 PH1LF
111 GND1
110 SECPLL
109 DECBG
108 AVL/EWD
107 VDRB
106 VDRA
105 VIFIN1
104 VIFIN2
103 VSC
102 IREF
101 GNDIF
100 DVBIN1/SIFIN1
99 DVBIN2/SIFIN2
98 AGCOUT
97 EHTO
1 P1.5/TX
2 P1.4/RX
3 P1.2/INT2
4 VSSC3
5 VDDC3
6 P2.5/PWM4
7 P2.4/PWM3
8 VSSC1/P
9 P3.3/ADC3
10 P3.2/ADC2
11 DECV1V8
12 VDDC1(1.8)
13 P3.1/ADC1
14 P3.0/ADC0
15 P2.3/PWM2
16 P2.2/PWM1
17 P2.1/PWM0
18 P2.0/PMW
19 VDDP(3.3V)
20 P1.7/SDA
21 P1.6/SCL
22 P1.3/T1
23 P0.0/I2SDI1
24 P0.1/I2SDO1
25 P0.2/I2SDO2
26 P0.3/I2SCLK
27 P0.4/I2SWS
28 VSSC2
29 VDDC2
30 P1.1/T0
31 P1.0/INT1
32 INT0/P0.5
96 AVL/SWO/SSIF/REFIN/REFOUT
95 AUDIOIN5L
94 AUDIOIN5R
93 AUDOUTSL
92 AUDOUTSR
91 DECSDEM
90 AMOUT/QSSO/AUDEEM
89 GND2
88 PLLIF
87 SIFAGC/DVBAGC
86 DVBO//IFVO/FMRO
85 DVBO/FMRO
84 VCC8V
83 AGC2SIF
82 VP2
81 SVO/IFOUT/CVBSI
80 AUDIOIN4L
79 AUDIOIN4R
78 CVBS4/Y4
77 C4
76 AUDIOIN2L/SSIF
75 AUDIOIN2R
74 CVBS2/Y2
73 AUDIOIN3L
72 AUDIOIN3R
71 CVBS3/Y3
70 C2/C3
69 AUDOUTLSL
68 AUDOUTLSR
67 AUDOUTHPL
66 AUDOUTHPR
65 CVBSO/PIP
QFP-128 0.8 mm pitch "face down version"
33 VDDadc(1.8)
34 VSSadc
35 VDDA2(3.3V)
36 VDDA(1.8V)
37 GNDA
38 VREFAD
39 VREFAD_POS
40 VREFAD_NEG
41 VDDA1(3.3V)
42 BO
43 GO
44 RO
45 BLKIN
46 BCLIN
47 VP3
48 GND3
49 B/PB-3
50 G/Y-3
51 R/PR-3
52 INSSW3
53 VOUT(SWO1)
54 UOUT(INSW-2)
55 YOUT
56 YSYNC
57 YIN(G/Y-2/CVBS/Y-X)
58 UIN (B/PB-2)
59 VIN(R/PR-2/C-X)
60 VDDcomb
61 VSScomb
62 HOUT
63 FBISO/CSY
64 SVM

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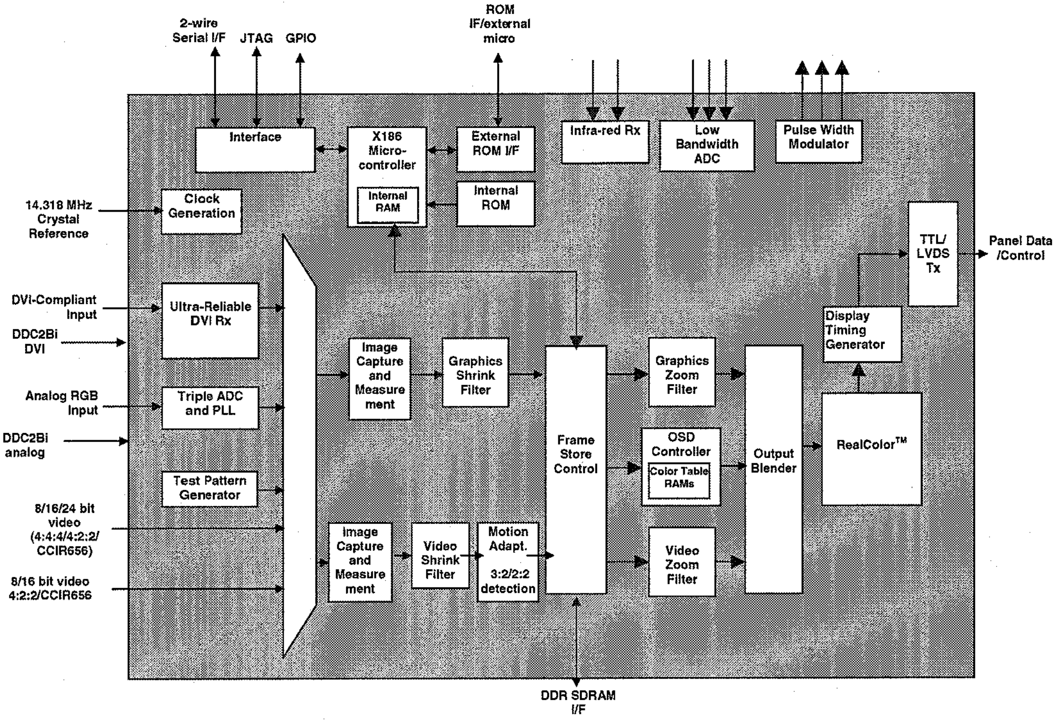
160804

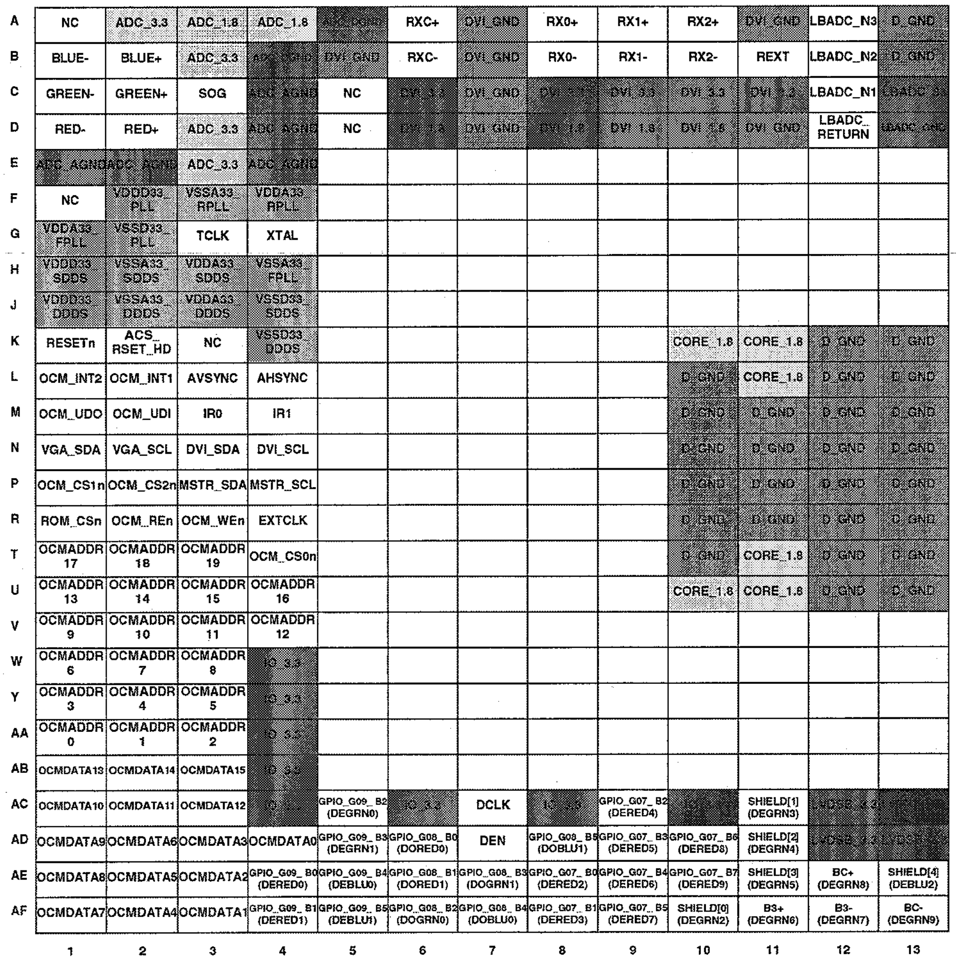
Figure 9-6 Internal Block Diagram and Pin Configuration

9.11.2 Diagram A7, Type GM1501 (IC7401)

Block Diagram


2-wire Serial I/F
JTAG
GPIO
Parallel ROM IF/external micro
Interface
X186 Micro-controller
Internal RAM
External ROM I/F
Internal ROM
Infra-red Rx
Low Bandwidth ADC
Pulse Width Modulator
14.318 MHz Crystal Reference
Clock Generation
TTL/ LVDS Tx
Panel Data /Control
DVI-Compliant Input
DDC2Bi DVI
Ultra-Reliable DVI Rx
Display Timing Generator
Analog RGB Input
Triple ADC and PLL
Image Capture and Measure ment
Graphics Shrink Filter
Frame Store Control
Graphics Zoom Filter
Output Blender
RealColor™
DDC2Bi analog
OSD Controller
Color Table RAMs
Test Pattern Generator
8/16/24 bit video (4:4:4/4:2:2/ CCIR656)
8/16 bit video 4:2:2/CCIR656
Image Capture and Measure ment
Video Shrink Filter
Motion Adapt.
3:2/2:2 detection
Video Zoom Filter
DDR SDRAM I/F

Pin Configuration



	1	2	3	4	5	6	7	8	9	10	11	12	13
A	NC	ADC_3.3	ADC_1.8	ADC_1.8	ADC_DGND	RXC+	DVI_GND	RX0+	RX1+	RX2+	DVI_GND	LBADC_N3	D_GND
B	BLUE-	BLUE+	ADC_3.3	ADC_DGND	DVI_GND	RXC-	DVI_GND	RX0-	RX1-	RX2-	REXT	LBADC_N2	D_GND
C	GREEN-	GREEN+	SOG	ADC_AGND	NC	DVI_3.3	DVI_GND	DVI_3.3	DVI_3.3	DVI_3.3	DVI_3.3	LBADC_N1	LBADC_3.3
D	RED-	RED+	ADC_3.3	ADC_AGND	NC	DVI_1.8	DVI_GND	DVI_1.8	DVI_1.8	DVI_1.8	DVI_GND	LBADC_ RETURN	LBADC_GND
E	ADC_AGND	ADC_AGND	ADC_3.3	ADC_AGND									
F	NC	VDDD33_ PLL	VSSA33_ RPLL	VDDA33_ RPLL									
G	VDDA33_ FPLL	VSSD33_ PLL	TCLK	XTAL									
H	VDDD33_ SDDS	VSSA33_ SDDS	VDDA33_ SDDS	VSSA33_ FPLL									
J	VDDD33_ DDDS	VSSA33_ DDDS	VDDA33_ DDDS	VSSD33_ SDDS									
K	RESETn	ACS_ RSET_HD	NC	VSSD33_ DDDS						CORE_1.8	CORE_1.8	D_GND	D_GND
L	OCM_INT2	OCM_INT1	AVSYNC	AHSYNC						D_GND	CORE_1.8	D_GND	D_GND
M	OCM_UDO	OCM_UDI	IR0	IR1						D_GND	D_GND	D_GND	D_GND
N	VGA_SDA	VGA_SCL	DVI_SDA	DVI_SCL						D_GND	D_GND	D_GND	D_GND
P	OCM_CS1n	OCM_CS2n	MSTR_SDA	MSTR_SCL						D_GND	D_GND	D_GND	D_GND
R	ROM_CSn	OCM_REn	OCM_WEn	EXTCLK						D_GND	D_GND	D_GND	D_GND
T	OCMADDR 17	OCMADDR 18	OCMADDR 19	OCM_CS0n						D_GND	CORE_1.8	D_GND	D_GND
U	OCMADDR 13	OCMADDR 14	OCMADDR 15	OCMADDR 16						CORE_1.8	CORE_1.8	D_GND	D_GND
V	OCMADDR 9	OCMADDR 10	OCMADDR 11	OCMADDR 12									
W	OCMADDR 6	OCMADDR 7	OCMADDR 8	IO_3.3									
Y	OCMADDR 3	OCMADDR 4	OCMADDR 5	IO_3.3									
AA	OCMADDR 0	OCMADDR 1	OCMADDR 2	IO_3.3									
AB	OCMDATA13	OCMDATA14	OCMDATA15	IO_3.3									
AC	OCMDATA10	OCMDATA11	OCMDATA12	IO_3.3	GPIO_G09_ B2 (DEGRN0)	IO_3.3	DCLK	IO_3.3	GPIO_G07_ B2 (DERED4)	IO_3.3	SHIELD[1] (DEGRN3)	LVDS_3.3	[illegible]
AD	OCMDATA9	OCMDATA6	OCMDATA3	OCMDATA0	GPIO_G09_ B3 (DEGRN1)	GPIO_G08_ B0 (DORED0)	DEN	GPIO_G08_ B5 (DOBLU1)	GPIO_G07_ B3 (DERED5)	GPIO_G07_ B6 (DERED8)	SHIELD[2] (DEGRN4)	LVDS_3.3	LVDS_3.3
AE	OCMDATA8	OCMDATA5	OCMDATA2	GPIO_G09_ B0 (DERED0)	GPIO_G09_ B4 (DEBLU0)	GPIO_G08_ B1 (DORED1)	GPIO_G08_ B3 (DOGRN1)	GPIO_G07_ B0 (DERED2)	GPIO_G07_ B4 (DERED6)	GPIO_G07_ B7 (DERED9)	SHIELD[3] (DEGRN5)	BC+ (DEGRN8)	SHIELD[4] (DEBLU2)
AF	OCMDATA7	OCMDATA4	OCMDATA1	GPIO_G09_ B1 (DERED1)	GPIO_G09_ B5 (DEBLU1)	GPIO_G08_ B2 (DOGRN0)	GPIO_G08_ B4 (DOBLU0)	GPIO_G07_ B1 (DERED3)	GPIO_G07_ B5 (DERED7)	SHIELD[0] (DEGRN2)	B3+ (DEGRN6)	B3- (DEGRN7)	BC- (DEGRN9)

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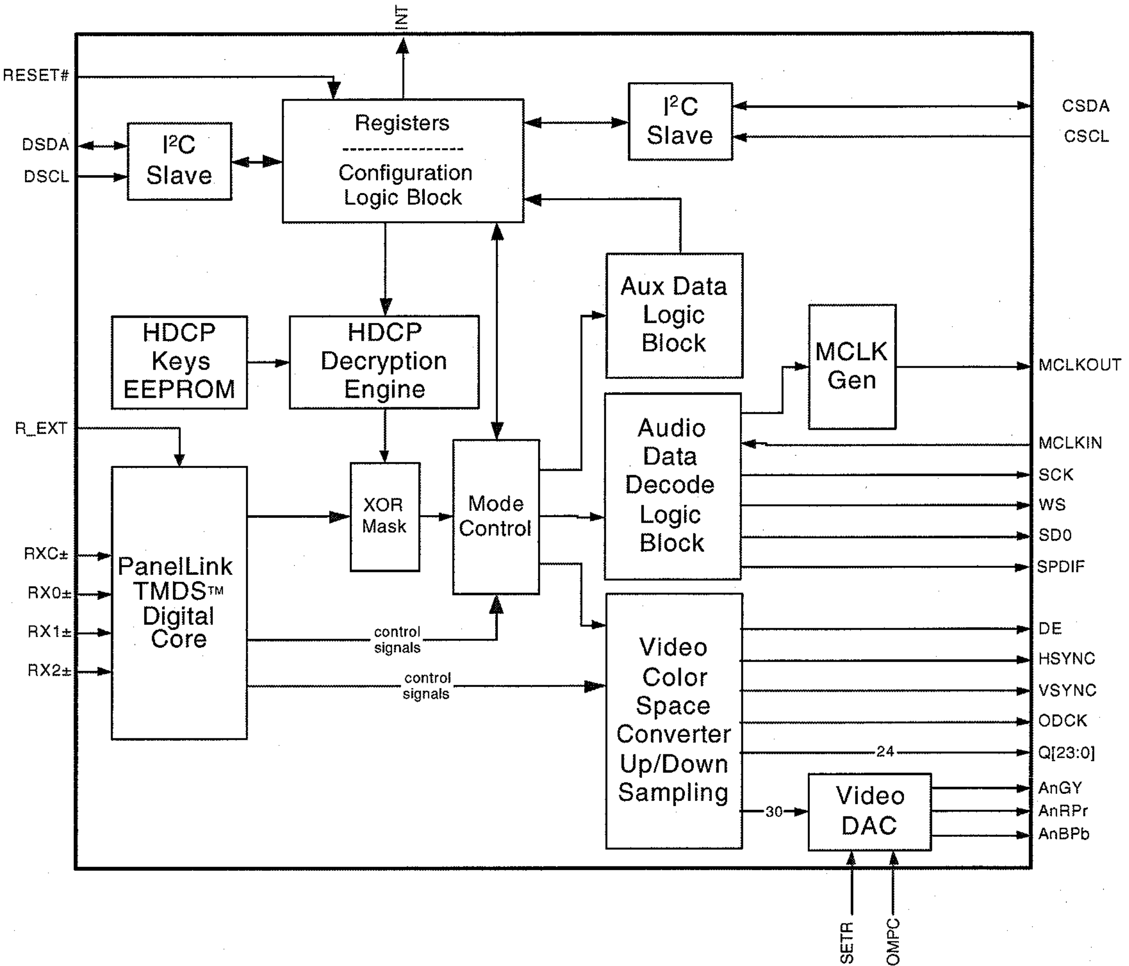
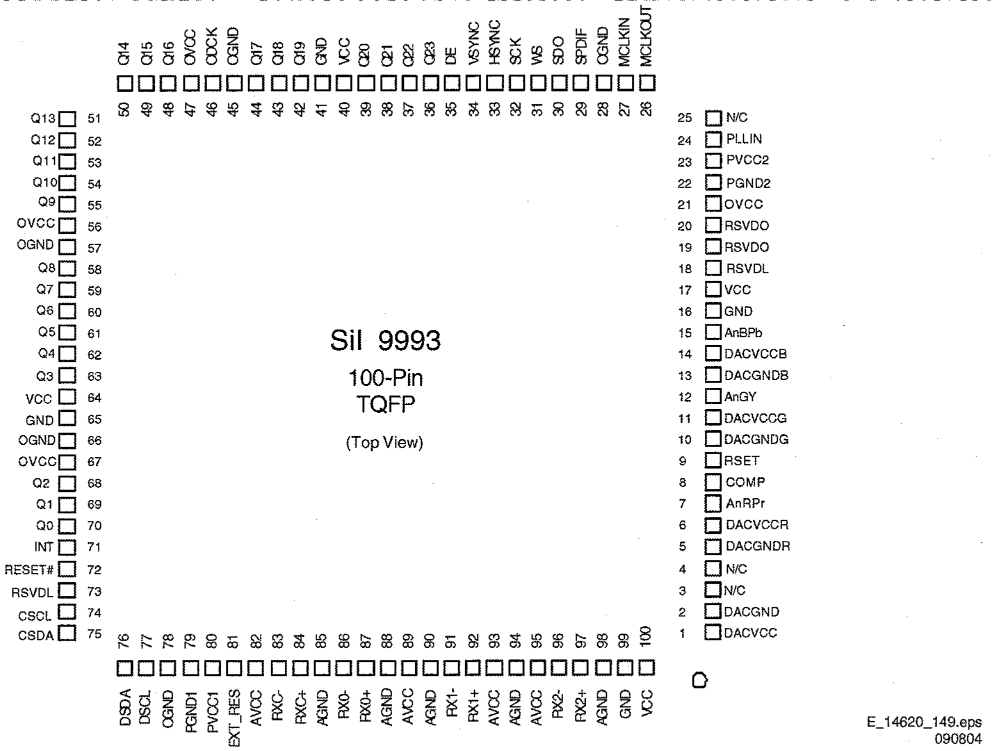
Figure 9-7 Internal Block Diagram and Pin Configuration

9.11.3 Diagram A12, Type Sil9993CT (IC7808)

BLOCK DIAGRAM


INT
RESET#
DSDA
DSCL
I²C Slave
Registers
Configuration Logic Block
I²C Slave
CSDA
CSCL
Aux Data Logic Block
MCLK Gen
MCLKOUT
HDCP Keys EEPROM
HDCP Decryption Engine
R_EXT
Audio Data Decode Logic Block
MCLKIN
SCK
WS
SD0
SPDIF
RXC±
RX0±
RX1±
RX2±
PanelLink TMDS™ Digital Core
XOR Mask
Mode Control
control signals
control signals
Video Color Space Converter Up/Down Sampling
DE
HSYNC
VSYNC
ODCK
24
Q[23:0]
30
Video DAC
AnGY
AnRPr
AnBPb
SETR
OMPC

PIN CONFIGURATION


Q14 50
Q15 49
Q16 48
OVCC 47
ODCK 46
OGND 45
Q17 44
Q18 43
Q19 42
GND 41
VCC 40
Q20 39
Q21 38
Q22 37
Q23 36
DE 35
VSYNC 34
HSYNC 33
SCK 32
WS 31
SDO 30
SPDIF 29
OGND 28
MCLKIN 27
MCLKOUT 26
Q13 51
Q12 52
Q11 53
Q10 54
Q9 55
OVCC 56
OGND 57
Q8 58
Q7 59
Q6 60
Q5 61
Q4 62
Q3 63
VCC 64
GND 65
OGND 66
OVCC 67
Q2 68
Q1 69
Q0 70
INT 71
RESET# 72
RSVDL 73
CSCL 74
CSDA 75
25 N/C
24 PLLIN
23 PVCC2
22 PGND2
21 OVCC
20 RSVDO
19 RSVDO
18 RSVDL
17 VCC
16 GND
15 AnBPb
14 DACVCCB
13 DACGNDB
12 AnGY
11 DACVCCG
10 DACGNDG
9 RSET
8 COMP
7 AnRPr
6 DACVCCR
5 DACGNDR
4 N/C
3 N/C
2 DACGND
1 DACVCC
Sil 9993
100-Pin TQFP
(Top View)
76 DSDA
77 DSCL
78 OGND
79 PGND1
80 PVCC1
81 EXT_RES
82 AVCC
83 RXC-
84 RXC+
85 AGND
86 RX0-
87 RX0+
88 AGND
89 AVCC
90 AGND
91 RX1-
92 RX1+
93 AVCC
94 AGND
95 AVCC
96 RX2-
97 RX2+
98 AGND
99 GND
100 VCC
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090804

Figure 9-8 Internal Block Diagram

10. Spare Parts List

Set Level

Various

1004▲	9322 199 94682	LCD LC300W01A5 (LPL)
1004▲	9322 206 53682	LCD LC300W01C5 (LPL)
1004▲	9322 213 33682	LCD T296XW01V3(AUO)
1116	3104 328 26371	Side I/O assy LCD
8302	3104 311 04731	Cable 7p/560/7p
8303	3104 311 06511	Cable 10p/280/10p
8304	3104 311 08271	Cable 4p/340/4p
8305	3104 311 08411	Cable 3P/340/3P
8306	3104 311 01431	Cable 2P3/340/2P3
8307	3104 311 08371	Cable 4p/340/4p
8309	3104 311 08301	Cable 3p/340/3p
8312	3104 311 06361	Cable 15p/340/16p (LPL)
8313	3104 311 08791	Cable 15p/120/16p (LPL)
8315	3104 311 06511	Cble 10p/280/10p (AUO)
8317	3104 311 03611	Cble 12p/280/12p (AUO)
8346	3104 311 07001	Cable 11p/400/11p
8350	3104 311 08611	Cable 31p/120/20p DF19
8352	3104 311 06811	Cable 9p340/9p

Small Signal Board [A]

Various

0601	3104 317 07831	SW (check Prod. Survey)
1001	2422 543 01414	Crystal 24M576
1101	2422 025 18133	Socket 21p f
1102	2422 025 18133	Socket 21p f
1105	2422 026 05462	Socket CHINCH 4p f
1301	2422 025 16835	Connector 3p m
1302▲	3139 147 19801	Tuner U+V PLL BGHIL
1328	2422 549 44372	SAW 38.9MHz K3953L
1330	2422 549 44369	SAW 38.9MHz K9656L
1336	2422 025 10655	Connector 11p m
1401	2422 543 01133	Xtal 14.32MHz 20pF
1402	2422 025 10768	Connector 3p m
1450	2422 025 18427	Connector 31p f
1681	2422 025 16835	Connector 3p m
1687	2438 031 00416	Connector 15p f
1752	2422 025 10769	Connector 9p m
1860	2422 549 45325	Bead 67Ω at 100MHz
1861	2422 549 45325	Bead 67Ω at 100MHz
1862	2422 549 45325	Bead 67Ω at 100MHz
1863	2422 549 45325	Bead 67Ω at 100MHz
1864	2422 549 45325	Bead 67Ω at 100MHz
8308	3104 311 07691	Cable 2P3/280/INLET

⊣⊢

2000	2022 552 05682	2.2µF 10% 6.3V
2001	2020 552 96718	220nF 10% 6.3V 0402
2002	4822 124 23002	10µF 16V
2003	2238 869 15109	10pF 5% 50V 0402
2004	2020 552 96718	220nF 10% 6.3V 0402
2005	3198 035 71040	100nF 10% 16V 0402
2006	3198 034 06880	6.8pF 1% 50V 0402
2007	3198 034 06880	6.8pF 1% 50V 0402
2008	3198 017 44740	470nF 10V 0603
2009	3198 017 41050	1µF 10V 0603
2010	3198 035 26820	6.8nF 10% 16V 0402
2011	2020 552 96718	220nF 10% 6.3V 0402
2012	4822 124 12095	100µF 20% 16V
2013	3198 035 71040	100nF 10% 16V 0402
2014	3198 035 71040	100nF 10% 16V 0402
2015	3198 035 71040	100nF 10% 16V 0402
2016	3198 035 71040	100nF 10% 16V 0402
2017	3198 035 71040	100nF 10% 16V 0402
2018	3198 035 71040	100nF 10% 16V 0402
2019	4822 124 80151	47µF 16V
2020	2238 869 15101	100pF 5% 50V 0402
2021	2020 552 96628	10nF 10% 16V 0402
2022	3198 035 02210	220pF 5% 50V 0402
2023	3198 035 71040	100nF 10% 16V 0402
2024	4822 124 12095	100µF 20% 16V
2025	3198 035 71040	100nF 10% 16V 0402
2026	3198 035 71040	100nF 10% 16V 0402
2027	3198 035 71040	100nF 10% 16V 0402
2028	2020 552 96628	10nF 10% 16V 0402
2029	3198 035 71040	100nF 10% 16V 0402
2030	3198 035 71040	100nF 10% 16V 0402
2031	3198 035 71040	100nF 10% 16V 0402
2032	3198 035 71040	100nF 10% 16V 0402
2033	2020 552 96718	220nF 10% 6.3V 0402
2034	2020 552 00002	3.3nF 2% 50V 0805
2035	2020 552 96656	10µF 20% 25V 1210
2036	2020 552 96807	1µF 10% 10V 0603
2037	2020 552 96807	1µF 10% 10V 0603
2040	4822 124 23002	10µF 16V
2041	2020 552 96718	220nF 10% 6.3V 0402
2042	2020 552 00002	3.3nF 2% 50V 0805
2043	3198 035 71040	100nF 10% 16V 0402
2044	2020 552 96718	220nF 10% 6.3V 0402
2045	2238 869 15109	10pF 5% 50V 0402
2046	2238 869 15109	10pF 5% 50V 0402
2047	2020 552 96628	10nF 10% 16V 0402
2048	2238 869 15109	10pF 5% 50V 0402
2049	2238 869 15109	10pF 5% 50V 0402
2050	2238 869 15109	10pF 5% 50V 0402
2051	2020 552 00002	3.3nF 2% 50V 0805
2053	2020 552 96618	1nF 10% 50V 0402
2054	2020 552 96632	22nF 10% 16V 0402
2055	4822 126 14519	22pF 5% 50V 0402
2056	3198 035 71040	100nF 10% 16V 0402
2057	2238 869 15109	10pF 5% 50V 0402
2058	2238 869 15109	10pF 5% 50V 0402
2059	2238 869 15109	10pF 5% 50V 0402
2060	3198 035 71040	100nF 10% 16V 0402
2061	4822 124 23002	10µF 16V
2062	2238 869 15109	10pF 5% 50V 0402
2063	3198 017 31540	150nF 10V 0603
2064	3198 017 41050	1µF 10V 0603
2067	2238 869 15109	10pF 5% 50V 0402
2068	2020 552 96718	220nF 10% 6.3V 0402
2069	2238 869 15109	10pF 5% 50V 0402
2070	2020 552 96834	1µF 20% 6.3V 0402
2071	4822 124 12095	100µF 20% 16V
2072	4822 126 14076	220nF +80/-20% 25V
2073	2020 552 96618	1nF 10% 50V 0402
2074	2020 552 96718	220nF 10% 6.3V 0402
2076	2020 552 96718	220nF 10% 6.3V 0402
2077	2020 552 96834	1µF 20% 6.3V 0402
2078	2238 869 15101	100pF 5% 50V 0402
2079	2238 869 15109	10pF 5% 50V 0402
2080	2238 869 15109	10pF 5% 50V 0402
2081	2238 869 15109	10pF 5% 50V 0402
2082	2020 552 96618	1nF 10% 50V 0402
2084	2020 552 96718	220nF 10% 6.3V 0402
2085	2020 552 96618	1nF 10% 50V 0402
2086	2020 552 96618	1nF 10% 50V 0402
2087	2238 869 15109	10pF 5% 50V 0402
2088	2238 869 15109	10pF 5% 50V 0402
2089	2020 552 96618	1nF 10% 50V 0402
2090	2238 869 15109	10pF 5% 50V 0402
2091	2238 869 15109	10pF 5% 50V 0402
2092	2238 869 15109	10pF 5% 50V 0402
2093	2238 869 15109	10pF 5% 50V 0402
2094	2238 869 15109	10pF 5% 50V 0402
2095	2238 869 15109	10pF 5% 50V 0402
2096	2238 869 15109	10pF 5% 50V 0402
2097	2238 869 15109	10pF 5% 50V 0402
2098	2238 869 15109	10pF 5% 50V 0402
2099	2020 552 96618	1nF 10% 50V 0402
2101	4822 126 14241	330pF 0603 50V
2103	4822 126 14241	330pF 0603 50V
2104	2020 552 96807	1µF 10% 10V 0603
2105	4822 126 14241	330pF 0603 50V
2107	4822 126 14241	330pF 0603 50V
2108	2020 552 96807	1µF 10% 10V 0603
2109	4822 126 13881	470pF 5% 50V
2110	4822 126 13881	470pF 5% 50V
2111	4822 126 13881	470pF 5% 50V
2112	4822 126 13881	470pF 5% 50V
2127	4822 126 14241	330pF 0603 50V
2128	2020 552 96807	1µF 10% 10V 0603
2129	4822 126 14241	330pF 0603 50V
2131	4822 126 14241	330pF 0603 50V
2132	2020 552 96807	1µF 10% 10V 0603
2133	4822 126 14241	330pF 0603 50V
2134	4822 126 13881	470pF 5% 50V
2135	4822 126 13881	470pF 5% 50V
2136	4822 126 13881	470pF 5% 50V
2137	4822 126 13881	470pF 5% 50V
2138	3198 017 41050	1µF 10V 0603
2152	4822 126 14241	330pF 0603 50V
2155	4822 126 14241	330pF 0603 50V
2169	4822 124 23002	10µF 16V
2251	2238 869 15109	10pF 5% 50V 0402
2252	2238 869 15109	10pF 5% 50V 0402
2253	4822 124 23002	10µF 16V
2254	4822 124 23002	10µF 16V
2262	4822 124 80151	47µF 16V
2263	2020 552 96656	10µF 20% 25V 1210
2264	2020 552 96656	10µF 20% 25V 1210
2265	3198 035 02210	220pF 5% 50V 0402
2266	2020 552 96632	22nF 10% 16V 0402
2268	2020 012 93795	470µF 20% 16V
2269	2020 012 93795	470µF 20% 16V
2271	2020 552 96628	10nF 10% 16V 0402
2302	4822 122 33761	22pF 5% 50V
2303	4822 122 33761	22pF 5% 50V
2307	3198 024 44730	47nF 50V 0603
2308	3198 030 82280	2.2µF 20% 50V
2309	2020 021 91871	470µF 20% 16V
2311	4822 124 12095	100µF 20% 16V
2321	5322 126 11583	10nF 10% 50V 0603
2324	5322 126 11583	10nF 10% 50V 0603
2355	3198 030 82280	2.2µF 20% 50V
2356	3198 030 82280	2.2µF 20% 50V
2357	3198 035 71040	100nF 10% 16V 0402
2358	2020 552 96625	3.3nF 10% 50V 0402
2359	2020 552 96628	10nF 10% 16V 0402
2370	2020 552 96834	1µF 20% 6.3V 0402
2371	2020 552 96834	1µF 20% 6.3V 0402
2372	2020 552 96618	1nF 10% 50V 0402
2373	2020 552 96618	1nF 10% 50V 0402
2374	3198 035 71040	100nF 10% 16V 0402
2375	4822 124 12082	10µF 20% 50V
2376	3198 017 41050	1µF 10V 0603
2377	3198 017 41050	1µF 10V 0603
2378	2020 552 96718	220nF 10% 6.3V 0402
2380	4822 124 12095	100µF 20% 16V
2381	3198 035 71040	100nF 10% 16V 0402
2382	2020 021 91871	470µF 20% 16V
2386	3198 017 41050	1µF 10V 0603
2387	4822 126 14324	33pF 5% 50V 0402
2388	4822 126 14324	33pF 5% 50V 0402
2392	3198 017 41050	1µF 10V 0603
2394	3198 035 71040	100nF 10% 16V 0402
2395	3198 035 71040	100nF 10% 16V 0402
2396	4822 124 23002	10µF 16V
2397	2020 552 96834	1µF 20% 6.3V 0402
2398	2020 552 96834	1µF 20% 6.3V 0402
2401	4822 124 80151	47µF 16V
2402	4822 124 80151	47µF 16V
2403	3198 035 71040	100nF 10% 16V 0402
2404	3198 035 71040	100nF 10% 16V 0402
2405	3198 035 71040	100nF 10% 16V 0402
2406	3198 035 71040	100nF 10% 16V 0402
2407	3198 035 71040	100nF 10% 16V 0402
2408	3198 035 71040	100nF 10% 16V 0402
2409	3198 035 71040	100nF 10% 16V 0402
2410	3198 035 71040	100nF 10% 16V 0402
2411	3198 035 71040	100nF 10% 16V 0402
2412	3198 035 71040	100nF 10% 16V 0402
2413	3198 035 71040	100nF 10% 16V 0402
2414	3198 035 71040	100nF 10% 16V 0402
2415	3198 035 71040	100nF 10% 16V 0402
2416	3198 035 71040	100nF 10% 16V 0402
2417	4822 124 80151	47µF 16V
2418	4822 124 80151	47µF 16V
2419	3198 035 71040	100nF 10% 16V 0402
2420	3198 035 71040	100nF 10% 16V 0402
2421	3198 035 71040	100nF 10% 16V 0402
2422	3198 035 71040	100nF 10% 16V 0402
2423	3198 035 71040	100nF 10% 16V 0402
2424	3198 035 71040	100nF 10% 16V 0402
2425	3198 035 71040	100nF 10% 16V 0402
2426	3198 035 71040	100nF 10% 16V 0402
2427	3198 035 71040	100nF 10% 16V 0402
2428	3198 035 71040	100nF 10% 16V 0402
2429	3198 035 71040	100nF 10% 16V 0402
2430	3198 035 71040	100nF 10% 16V 0402
2431	3198 035 71040	100nF 10% 16V 0402
2432	3198 035 71040	100nF 10% 16V 0402
2433	3198 035 71040	100nF 10% 16V 0402
2434	4822 124 80151	47µF 16V
2435	4822 124 80151	47µF 16V
2436	3198 035 71040	100nF 10% 16V 0402
2437	3198 035 71040	100nF 10% 16V 0402
2438	3198 035 71040	100nF 10% 16V 0402
2439	3198 035 71040	100nF 10% 16V 0402
2440	3198 035 71040	100nF 10% 16V 0402
2441	3198 035 71040	100nF 10% 16V 0402
2442	3198 035 71040	100nF 10% 16V 0402
2443	3198 035 71040	100nF 10% 16V 0402
2444	3198 035 71040	100nF 10% 16V 0402
2445	3198 035 71040	100nF 10% 16V 0402
2446	3198 035 71040	100nF 10% 16V 0402
2447	3198 035 71040	100nF 10% 16V 0402
2448	3198 035 71040	100nF 10% 16V 0402
2449	3198 035 71040	100nF 10% 16V 0402

2450	3198 035 71040	100nF 10% 16V 0402
2451	4822 124 80151	47µF 16V
2452	3198 035 71040	100nF 10% 16V 0402
2453	3198 035 71040	100nF 10% 16V 0402
2454	3198 035 71040	100nF 10% 16V 0402
2455	3198 035 71040	100nF 10% 16V 0402
2456	3198 035 71040	100nF 10% 16V 0402
2461	3198 035 71040	100nF 10% 16V 0402
2462	3198 035 71040	100nF 10% 16V 0402
2463	3198 035 71040	100nF 10% 16V 0402
2464	3198 035 71040	100nF 10% 16V 0402
2465	5322 124 41945	22µF 20% 35V
2466	3198 035 71040	100nF 10% 16V 0402
2467	3198 035 71040	100nF 10% 16V 0402
2468	3198 035 71040	100nF 10% 16V 0402
2469	3198 035 71040	100nF 10% 16V 0402
2470	5322 124 41945	22µF 20% 35V
2471	3198 035 71040	100nF 10% 16V 0402
2472	3198 035 71040	100nF 10% 16V 0402
2473	3198 035 71040	100nF 10% 16V 0402
2474	3198 035 71040	100nF 10% 16V 0402
2475	3198 035 71040	100nF 10% 16V 0402
2476	3198 035 71040	100nF 10% 16V 0402
2477	3198 035 71040	100nF 10% 16V 0402
2478	5322 124 41945	22µF 20% 35V
2479	3198 035 71040	100nF 10% 16V 0402
2480	3198 035 71040	100nF 10% 16V 0402
2481	3198 035 71040	100nF 10% 16V 0402
2482	5322 124 41945	22µF 20% 35V
2483	3198 035 71040	100nF 10% 16V 0402
2484	3198 035 71040	100nF 10% 16V 0402
2485	3198 035 71040	100nF 10% 16V 0402
2486	3198 035 71040	100nF 10% 16V 0402
2487	4822 126 14519	22pF 5% 50V 0402
2488	4822 126 14519	22pF 5% 50V 0402
2490	2238 586 59812	100nF 20% 50V 0603
2491	2238 586 59812	100nF 20% 50V 0603
2492	2238 586 59812	100nF 20% 50V 0603
2493	2020 552 96807	1µF 10% 10V 0603
2495	4822 124 80151	47µF 16V
2496	3198 035 71040	100nF 10% 16V 0402
2501	4822 124 80151	47µF 16V
2502	4822 124 11131	47µF 6.3V
2503	3198 035 71040	100nF 10% 16V 0402
2504	3198 035 71040	100nF 10% 16V 0402
2505	3198 035 71040	100nF 10% 16V 0402
2506	3198 035 71040	100nF 10% 16V 0402
2507	3198 035 71040	100nF 10% 16V 0402
2508	3198 035 71040	100nF 10% 16V 0402
2509	3198 035 71040	100nF 10% 16V 0402
2510	3198 035 71040	100nF 10% 16V 0402
2511	3198 035 71040	100nF 10% 16V 0402
2512	3198 035 71040	100nF 10% 16V 0402
2513	3198 035 71040	100nF 10% 16V 0402
2514	3198 035 71040	100nF 10% 16V 0402
2515	3198 035 71040	100nF 10% 16V 0402
2516	3198 035 71040	100nF 10% 16V 0402
2517	3198 035 71040	100nF 10% 16V 0402
2526	5322 124 41945	22µF 20% 35V
2530	4822 124 23002	10µF 16V
2531	3198 035 71040	100nF 10% 16V 0402
2532	3198 035 71040	100nF 10% 16V 0402
2533	3198 035 71040	100nF 10% 16V 0402
2560	3198 035 71040	100nF 10% 16V 0402
2561	4822 124 12095	100µF 20% 16V
2562	3198 035 71040	100nF 10% 16V 0402
2563	3198 035 14720	4.7nF 5% 25V 0402
2564	2020 552 96656	10µF 20% 25V 1210
2580	3198 035 71040	100nF 10% 16V 0402
2581	3198 035 71040	100nF 10% 16V 0402
2582	3198 035 71040	100nF 10% 16V 0402
2583	3198 035 71040	100nF 10% 16V 0402
2584	3198 035 71040	100nF 10% 16V 0402
2585	2238 869 75829	82pF 5% 50V 0402
2586	2238 869 75829	82pF 5% 50V 0402
2587	3198 035 03310	330pF 5% 50V 0402
2588	3198 035 04710	470pF 50V 0402
2605	3198 035 71040	100nF 10% 16V 0402
2606	3198 035 71040	100nF 10% 16V 0402
2607	3198 035 71040	100nF 10% 16V 0402
2608	3198 035 71040	100nF 10% 16V 0402
2609	3198 035 71040	100nF 10% 16V 0402
2610	3198 035 71040	100nF 10% 16V 0402
2611	4822 124 11131	47µF 6.3V
2612	2020 552 96628	10nF 10% 16V 0402
2613	2020 552 96628	10nF 10% 16V 0402
2614	2020 552 96628	10nF 10% 16V 0402
2615	2020 552 96628	10nF 10% 16V 0402
2616	2020 552 96628	10nF 10% 16V 0402
2617	2020 552 96628	10nF 10% 16V 0402
2618	2020 552 96628	10nF 10% 16V 0402
2619	4822 126 14324	33pF 5% 50V 0402
2620	2020 552 96807	1µF 10% 10V 0603
2621	2020 552 96834	1µF 20% 6.3V 0402
2622	2020 552 96834	1µF 20% 6.3V 0402
2623	2020 552 96834	1µF 20% 6.3V 0402
2624	3198 017 44740	470nF 10V 0603
2625	3198 017 44740	470nF 10V 0603
2626	3198 017 44740	470nF 10V 0603
2630	2020 552 96834	1µF 20% 6.3V 0402
2631	2020 552 96834	1µF 20% 6.3V 0402
2632	2020 552 96834	1µF 20% 6.3V 0402
2633	2020 552 96834	1µF 20% 6.3V 0402
2634	2020 552 96834	1µF 20% 6.3V 0402
2635	2020 552 96834	1µF 20% 6.3V 0402
2636	3198 035 71040	100nF 10% 16V 0402
2681	2020 552 94427	100pF 5% 50V
2686	2020 552 94427	100pF 5% 50V
2688	2238 586 59812	100nF 20% 50V 0603
2693	2238 586 59812	100nF 20% 50V 0603
2698	2020 552 94427	100pF 5% 50V
2699	2020 552 94427	100pF 5% 50V
2702	2020 552 96834	1µF 20% 6.3V 0402
2707	2020 021 91871	470µF 20% 16V
2708	2020 552 96834	1µF 20% 6.3V 0402
2710	3198 035 04710	470pF 50V 0402
2711	3198 035 04710	470pF 50V 0402
2713	2238 586 59812	100nF 20% 50V 0603
2714	2020 021 91871	470µF 20% 16V
2715	2020 021 91871	470µF 20% 16V
2719	2238 586 59812	100nF 20% 50V 0603
2720	2238 869 15109	10pF 5% 50V 0402
2743	2020 552 96834	1µF 20% 6.3V 0402
2744	2020 552 96834	1µF 20% 6.3V 0402
2747	2238 869 15101	100pF 5% 50V 0402
2748	2238 869 15101	100pF 5% 50V 0402
2749	2238 869 15101	100pF 5% 50V 0402
2750	2238 869 15101	100pF 5% 50V 0402
2784	4822 126 14241	330pF 0603 50V
2785	4822 126 14241	330pF 0603 50V
2847	3198 017 41050	1µF 10V 0603
2848	3198 017 41050	1µF 10V 0603
2860	2238 869 15109	10pF 5% 50V 0402
2861	2238 869 15109	10pF 5% 50V 0402
2862	2238 869 15109	10pF 5% 50V 0402
2863	2238 869 15109	10pF 5% 50V 0402
2864	2238 869 15109	10pF 5% 50V 0402
2865	2238 869 15109	10pF 5% 50V 0402
2866	2238 869 15109	10pF 5% 50V 0402
2867	2238 869 15109	10pF 5% 50V 0402
2868	2238 869 15109	10pF 5% 50V 0402
2869	2238 869 15109	10pF 5% 50V 0402
2874	2238 869 15109	10pF 5% 50V 0402
2875	2238 869 15109	10pF 5% 50V 0402
2876	2020 552 96628	10nF 10% 16V 0402
2877	2238 869 15109	10pF 5% 50V 0402
2878	2020 552 96628	10nF 10% 16V 0402
2879	2020 552 96628	10nF 10% 16V 0402
2880	2238 869 15109	10pF 5% 50V 0402
2881	2020 552 96628	10nF 10% 16V 0402
2883	2238 869 15109	10pF 5% 50V 0402
2884	2020 552 96628	10nF 10% 16V 0402
2887	2238 869 15109	10pF 5% 50V 0402
2910	3198 035 04710	470pF 50V 0402
2911	3198 030 72290	22µF 20% 35V
2920	4822 124 80151	47µF 16V
2921	4822 124 80151	47µF 16V
2930	2020 021 91871	470µF 20% 16V
2931	3198 035 04710	470pF 50V 0402
2933	2020 021 91871	470µF 20% 16V
2934	2020 552 96793	4.7nF 10% 50V 0402
2935	2020 021 91871	470µF 20% 16V
2953	2020 021 91871	470µF 20% 16V
2955	3198 035 14720	4.7nF 5% 25V 0402
2956	3198 035 02210	220pF 5% 50V 0402
2957	2020 021 91871	470µF 20% 16V
2958	2020 021 91871	470µF 20% 16V
2960	4822 124 80151	47µF 16V
2961	3198 035 71030	10nF 16V 0402
2992	3198 035 71040	100nF 10% 16V 0402
2993	2020 552 96618	1nF 10% 50V 0402
2994	2020 021 91871	470µF 20% 16V
2995	3198 035 71040	100nF 10% 16V 0402
2996	4822 124 80151	47µF 16V

-WW-

3000	3198 031 05620	5.6kΩ 5% 0.01W 0402
3001	2322 702 70398	3.9Ω 5% 0603
3002	4822 117 13601	22kΩ 5% 0402
3003	2322 702 70398	3.9Ω 5% 0603
3004	4822 117 13601	22kΩ 5% 0402
3005	3198 031 05620	5.6kΩ 5% 0.01W 0402
3006	4822 117 13545	100Ω 1% 0402
3007	3198 031 04720	4.7kΩ 5% 0402
3008	3198 031 04730	47Ω 5% 0402
3009	4822 117 11297	100kΩ 5% 0.1W
3010	4822 117 13548	1kΩ 5% 0402
3011	4822 117 13543	470Ω 5% 0402
3013	4822 117 13545	100Ω 1% 0402
3015	4822 117 13605	Jumper 0402
3017	4822 117 13605	Jumper 0402
3019	4822 117 13545	100Ω 1% 0402
3020	4822 117 13548	1kΩ 5% 0402
3021	2322 706 72702	2.7kΩ 1% 0402
3022	4822 117 13606	10kΩ 5% 0.01W 0402
3023	3198 031 01090	10Ω 5% 0.01W 0402
3024	3198 031 01090	10Ω 5% 0.01W 0402
3025	3198 031 01090	10Ω 5% 0.01W 0402
3026	3198 031 06890	68Ω 5% 0402
3027	3198 031 01090	10Ω 5% 0.01W 0402
3028	4822 117 11297	100kΩ 5% 0.1W
3029	4822 117 13548	1kΩ 5% 0402
3030	4822 117 11297	100kΩ 5% 0.1W
3032	3198 031 02240	220kΩ 5% 0.1W 0402
3035	4822 117 13545	100Ω 1% 0402
3040	3198 031 06830	68kΩ 5% 0.01W 0402
3048	4822 117 13606	10kΩ 5% 0.01W 0402
3049	4822 117 13545	100Ω 1% 0402
3050	4822 117 13545	100Ω 1% 0402
3051	4822 117 13545	100Ω 1% 0402
3052	4822 117 13605	Jumper 0402
3056	3198 031 04720	4.7kΩ 5% 0402
3057	4822 117 13545	100Ω 1% 0402
3058	4822 117 13543	470Ω 5% 0402
3059	4822 117 13548	1kΩ 5% 0402
3060	3198 031 03930	39kΩ 5% 0402
3063	3198 031 06890	68Ω 5% 0402
3065	3198 031 06810	680Ω 5% 0.01W 0402
3066	3198 031 06890	68Ω 5% 0402
3067	3198 031 01090	10Ω 5% 0.01W 0402
3068	3198 031 06890	68Ω 5% 0402
3069	3198 031 01090	10Ω 5% 0.01W 0402
3070	4822 117 13545	100Ω 1% 0402
3072	3198 031 06890	68Ω 5% 0402
3073	3198 031 01530	15kΩ 5% 0.01W 0402
3074	4822 117 11297	100kΩ 5% 0.1W
3075	3198 031 04720	4.7kΩ 5% 0402
3077	3198 031 04720	4.7kΩ 5% 0402
3078	3198 031 04720	4.7kΩ 5% 0402
3079	3198 031 04720	4.7kΩ 5% 0402
3080	5322 117 13034	1.5kΩ 1% 0.063W 0603
3081	4822 117 13545	100Ω 1% 0402
3082	3198 031 04720	4.7kΩ 5% 0402
3083	3198 031 04720	4.7kΩ 5% 0402
3084	4822 117 13545	100Ω 1% 0402
3085	3198 031 04720	4.7kΩ 5% 0402
3086	4822 117 13602	2.2kΩ 5% 0.01W 0402
3087	4822 117 13606	10kΩ 5% 0.01W 0402
3088	3198 031 03320	3.3kΩ 5% 0402
3089	3198 031 01540	150kΩ 5% 0402
3091	4822 117 13545	100Ω 1% 0402
3092	3198 031 04720	4.7kΩ 5% 0402
3093	3198 031 04720	4.7kΩ 5% 0402
3094	3198 031 01090	10Ω 5% 0.01W 0402
3096	3198 031 03320	3.3kΩ 5% 0402
3097	3198 031 04720	4.7kΩ 5% 0402
3098	4822 117 13545	100Ω 1% 0402
3101	4822 051 30151	150Ω 5% 0.062W
3102	4822 117 12891	220kΩ 1%
3103	4822 051 30151	150Ω 5% 0.062W
3104	4822 117 12925	47kΩ 1% 0.063W 0603
3105	4822 051 30151	150Ω 5% 0.062W
3106	4822 117 12891	220kΩ 1%
3107	4822 117 12925	47kΩ 1% 0.063W 0603
3108	4822 051 30151	150Ω 5% 0.062W
3109	4822 051 30759	75Ω 5% 0.062W
3110	4822 051 30331	330Ω 5% 0.062W
3111	4822 051 30273	27kΩ 5% 0.062W
3112	4822 051 30682	6.8Ω 5% 0.062W
3113	4822 051 30759	75Ω 5% 0.062W
3114	4822 051 30331	330Ω 5% 0.062W
3115	4822 051 30759	75Ω 5% 0.062W
3116	4822 051 30331	330Ω 5% 0.062W
3117	4822 051 30331	330Ω 5% 0.062W
3118	4822 051 30759	75Ω 5% 0.062W
3119	4822 051 30689	68Ω 5% 0.063W 0603
3120	4822 051 30008	Jumper 0603
3121	4822 051 30759	75Ω 5% 0.062W
3122	4822 051 30331	330Ω 5% 0.062W
3123	4822 051 30102	1kΩ 5% 0.062W
3124	4822 051 30151	150Ω 5% 0.062W
3125	4822 051 30151	150Ω 5% 0.062W
3126	4822 117 12891	220kΩ 1%
3127	4822 051 30151	150Ω 5% 0.062W
3128	4822 117 12925	47kΩ 1% 0.063W 0603
3129	4822 051 30151	150Ω 5% 0.062W
3130	4822 117 12891	220kΩ 1%
3131	4822 051 30151	150Ω 5% 0.062W
3132	4822 117 12925	47kΩ 1% 0.063W 0603
3133	4822 051 30151	150Ω 5% 0.062W

3134	4822 051 30682	6.8Ω 5% 0.062W
3135	4822 051 30273	27kΩ 5% 0.062W
3136	4822 051 30331	330Ω 5% 0.062W
3137	4822 051 30759	75Ω 5% 0.062W
3138	4822 117 13632	100kΩ 1% 0603 0.62W
3139	4822 117 13632	100kΩ 1% 0603 0.62W
3140	4822 051 30689	68Ω 5% 0.063W 0603
3141	4822 051 30102	1kΩ 5% 0.062W
3142	4822 051 30331	330Ω 5% 0.062W
3143	4822 051 30759	75Ω 5% 0.062W
3144	4822 051 30151	150Ω 5% 0.062W
3145	4822 051 30151	150Ω 5% 0.062W
3146	4822 051 30151	150Ω 5% 0.062W
3147	4822 051 30151	150Ω 5% 0.062W
3148	4822 051 30151	150Ω 5% 0.062W
3149	4822 051 30151	150Ω 5% 0.062W
3150	4822 051 30151	150Ω 5% 0.062W
3151	4822 051 30151	150Ω 5% 0.062W
3152	4822 117 12891	220kΩ 1%
3153	4822 051 30151	150Ω 5% 0.062W
3155	4822 117 12891	220kΩ 1%
3156	4822 051 30151	150Ω 5% 0.062W
3169	4822 051 30479	47Ω 5% 0.062W
3251	4822 117 11151	1Ω 5%
3259	4822 117 13606	10kΩ 5% 0.01W 0402
3260	3198 031 06820	6.8kΩ 5% 0.01W 0402
3266	3198 031 04720	4.7kΩ 5% 0402
3267	5322 117 13031	5.6kΩ 1% 0.063W 0603
3268	2322 704 63302	3.3kΩ 1% 0603
3270	4822 117 13602	2.2kΩ 5% 0.01W 0402
3271	4822 117 13543	470Ω 5% 0402
3273	3198 031 02240	220kΩ 5% 0.1W 0402
3274	4822 117 13601	22kΩ 5% 0402
3302	4822 051 30101	100Ω 5% 0.062W
3303	4822 051 30101	100Ω 5% 0.062W
3304	4822 117 13606	10kΩ 5% 0.01W 0402
3305	4822 117 13606	10kΩ 5% 0.01W 0402
3309	4822 117 13606	10kΩ 5% 0.01W 0402
3311	4822 051 30103	10kΩ 5% 0.062W
3319	4822 051 30273	27kΩ 5% 0.062W
3320	4822 051 30183	18kΩ 5% 0.062W
3321	4822 051 30222	2.2kΩ 5% 0.062W
3322	4822 051 30682	6.8Ω 5% 0.062W
3323	4822 051 30222	2.2kΩ 5% 0.062W
3327	4822 117 13548	1kΩ 5% 0402
3328	4822 117 13545	100Ω 1% 0402
3329	4822 117 13545	100Ω 1% 0402
3340	4822 117 13601	22kΩ 5% 0402
3342	4822 117 13606	10kΩ 5% 0.01W 0402
3343	3198 031 04720	4.7kΩ 5% 0402
3344	4822 117 13548	1kΩ 5% 0402
3345	3198 031 04720	4.7kΩ 5% 0402
3346	2322 706 75603	56kΩ 1% 0402
3347	3198 031 08210	820Ω 5% 0,5W
3348	3198 031 04720	4.7kΩ 5% 0402
3349	3198 031 01820	1.8kΩ 5% 0.01W 0402
3357	4822 117 13548	1kΩ 5% 0402
3358	4822 117 13545	100Ω 1% 0402
3359	3198 031 03910	390Ω 1% 0402
3370	3198 031 06810	680Ω 5% 0.01W 0402
3371	4822 117 13545	100Ω 1% 0402
3372	4822 117 13545	100Ω 1% 0402
3374	5322 117 11726	10Ω 5%
3378	4822 117 13545	100Ω 1% 0402
3380	4822 117 13606	10kΩ 5% 0.01W 0402
3381	4822 117 13606	10kΩ 5% 0.01W 0402
3382	4822 117 13606	10kΩ 5% 0.01W 0402
3383	4822 117 13606	10kΩ 5% 0.01W 0402
3386	4822 117 13545	100Ω 1% 0402
3389	4822 117 13545	100Ω 1% 0402
3390	4822 117 13545	100Ω 1% 0402
3391	4822 117 13545	100Ω 1% 0402
3392	4822 117 13545	100Ω 1% 0402
3393	4822 117 13545	100Ω 1% 0402
3394	3198 031 07590	75Ω 5% 0402
3401	2350 035 10229	4 x 22Ω 5%
3402	2350 035 10229	4 x 22Ω 5%
3403	2350 035 10229	4 x 22Ω 5%
3404	2350 035 10229	4 x 22Ω 5%
3405	2350 035 10229	4 x 22Ω 5%
3406	2350 035 10229	4 x 22Ω 5%
3407	2350 035 10229	4 x 22Ω 5%
3408	2350 035 10229	4 x 22Ω 5%
3409	2350 035 10229	4 x 22Ω 5%
3410	2350 035 10229	4 x 22Ω 5%
3411	2350 035 10229	4 x 22Ω 5%
3412	2350 035 10229	4 x 22Ω 5%
3413	2350 035 10229	4 x 22Ω 5%
3414	3198 031 02290	22Ω 5% 0.1W 0402
3415	3198 031 01090	10Ω 5% 0.01W 0402
3416	4822 117 13548	1kΩ 5% 0402
3417	4822 117 13548	1kΩ 5% 0402
3418	3198 031 03910	390Ω 1% 0402
3422	3198 031 02290	22Ω 5% 0.1W 0402

3423	3198 031 03320	3.3kΩ 5% 0402
3424	2322 704 61501	150Ω 1% 0603
3425	4822 117 13606	10kΩ 5% 0.01W 0402
3426	3198 031 03320	3.3kΩ 5% 0402
3428	4822 117 13606	10kΩ 5% 0.01W 0402
3429	4822 117 13606	10kΩ 5% 0.01W 0402
3432	4822 117 13606	10kΩ 5% 0.01W 0402
3433	4822 117 13606	10kΩ 5% 0.01W 0402
3436	4822 117 13606	10kΩ 5% 0.01W 0402
3437	4822 117 13606	10kΩ 5% 0.01W 0402
3438	3198 031 11030	4 x 10kΩ 5% 1206
3439	3198 031 11030	4 x 10kΩ 5% 1206
3440	3198 031 11030	4 x 10kΩ 5% 1206
3441	3198 031 11030	4 x 10kΩ 5% 1206
3442	3198 031 11030	4 x 10kΩ 5% 1206
3443	4822 117 13606	10kΩ 5% 0.01W 0402
3444	4822 051 30103	10kΩ 5% 0.062W
3446	5322 117 13017	100Ω 1% 0.063W 0603
3447	3198 031 02290	22Ω 5% 0.1W 0402
3448	3198 031 01090	10Ω 5% 0.01W 0402
3501	4822 117 12706	10kΩ 1% 0.063W 0603
3502	4822 117 12706	10kΩ 1% 0.063W 0603
3503	2322 704 61501	150Ω 1% 0603
3531	4822 117 13606	10kΩ 5% 0.01W 0402
3532	4822 117 13606	10kΩ 5% 0.01W 0402
3534	4822 117 13548	1kΩ 5% 0402
3536	4822 117 13606	10kΩ 5% 0.01W 0402
3538	3198 031 11030	4 x 10kΩ 5% 1206
3539	3198 031 11030	4 x 10kΩ 5% 1206
3540	3198 031 11030	4 x 10kΩ 5% 1206
3544	3198 031 11030	4 x 10kΩ 5% 1206
3545	3198 031 11030	4 x 10kΩ 5% 1206
3546	3198 031 11030	4 x 10kΩ 5% 1206
3547	3198 031 11030	4 x 10kΩ 5% 1206
3548	4822 117 13606	10kΩ 5% 0.01W 0402
3549	4822 051 30102	1kΩ 5% 0.062W
3550	4822 051 30102	1kΩ 5% 0.062W
3551	4822 051 30102	1kΩ 5% 0.062W
3552	4822 051 30102	1kΩ 5% 0.062W
3553	4822 051 30102	1kΩ 5% 0.062W
3560	4822 117 11297	100kΩ 5% 0.1W
3561	4822 117 11297	100kΩ 5% 0.1W
3562	4822 117 11297	100kΩ 5% 0.1W
3563	4822 117 13548	1kΩ 5% 0402
3564	3198 031 01220	1.2kΩ 5% 0.01W 0402
3565	4822 117 13548	1kΩ 5% 0402
3566	4822 117 13548	1kΩ 5% 0402
3567	4822 117 13548	1kΩ 5% 0402
3568	4822 117 13548	1kΩ 5% 0402
3579	4822 117 13548	1kΩ 5% 0402
3580	4822 117 13543	470Ω 5% 0402
3581	3198 031 04730	47Ω 5% 0402
3605	4822 117 13545	100Ω 1% 0402
3606	4822 117 13545	100Ω 1% 0402
3607	4822 117 13545	100Ω 1% 0402
3608	4822 117 13545	100Ω 1% 0402
3609	4822 117 13545	100Ω 1% 0402
3610	4822 117 13601	22kΩ 5% 0402
3612	4822 117 13543	470Ω 5% 0402
3613	3198 031 02290	22Ω 5% 0.1W 0402
3614	3198 031 02290	22Ω 5% 0.1W 0402
3615	3198 031 02290	22Ω 5% 0.1W 0402
3616	3198 031 02290	22Ω 5% 0.1W 0402
3617	3198 031 02290	22Ω 5% 0.1W 0402
3618	3198 031 02290	22Ω 5% 0.1W 0402
3619	3198 031 08210	820Ω 5% 0,5W
3620	4822 117 13632	100kΩ 1% 0603 0.62W
3621	4822 117 13601	22kΩ 5% 0402
3622	4822 117 13601	22kΩ 5% 0402
3623	4822 117 13601	22kΩ 5% 0402
3624	4822 117 13601	22kΩ 5% 0402
3625	4822 117 13601	22kΩ 5% 0402
3626	4822 117 13601	22kΩ 5% 0402
3633	4822 117 13545	100Ω 1% 0402
3634	4822 117 13545	100Ω 1% 0402
3635	4822 117 13545	100Ω 1% 0402
3638	4822 117 13545	100Ω 1% 0402
3639	4822 117 13545	100Ω 1% 0402
3641	4822 117 13597	330Ω 5% 0402 0.01W
3642	4822 117 13597	330Ω 5% 0402 0.01W
3643	4822 117 13597	330Ω 5% 0402 0.01W
3644	4822 117 13597	330Ω 5% 0402 0.01W
3645	4822 117 13597	330Ω 5% 0402 0.01W
3646	4822 117 13597	330Ω 5% 0402 0.01W
3680	4822 051 30222	2.2kΩ 5% 0.062W
3681	4822 051 30221	220Ω 5% 0.062W
3683	4822 051 30759	75Ω 5% 0.062W
3684	4822 051 30759	75Ω 5% 0.062W
3685	4822 051 30222	2.2kΩ 5% 0.062W
3686	4822 051 30221	220Ω 5% 0.062W
3687	4822 051 30759	75Ω 5% 0.062W
3689	4822 051 30101	100Ω 5% 0.062W
3693	4822 051 30103	10kΩ 5% 0.062W
3696	4822 051 30103	10kΩ 5% 0.062W

3697	4822 051 30103	10kΩ 5% 0.062W
3698	4822 051 30151	150Ω 5% 0.062W
3699	4822 051 30151	150Ω 5% 0.062W
3700	4822 117 12925	47kΩ 1% 0.063W 0603
3701	4822 117 13548	1kΩ 5% 0402
3702	4822 117 13606	10kΩ 5% 0.01W 0402
3703	4822 117 13606	10kΩ 5% 0.01W 0402
3705	4822 117 13606	10kΩ 5% 0.01W 0402
3711	4822 117 13605	Jumper 0402
3712	4822 117 13606	10kΩ 5% 0.01W 0402
3713	4822 117 13606	10kΩ 5% 0.01W 0402
3718	4822 117 13605	Jumper 0402
3723	4822 117 13548	1kΩ 5% 0402
3724	4822 117 13606	10kΩ 5% 0.01W 0402
3729	3198 031 03320	3.3kΩ 5% 0402
3730	3198 031 03320	3.3kΩ 5% 0402
3731	4822 117 13543	470Ω 5% 0402
3732	4822 117 13548	1kΩ 5% 0402
3733	4822 117 13543	470Ω 5% 0402
3739	4822 117 13601	22kΩ 5% 0402
3740	4822 117 13601	22kΩ 5% 0402
3741	4822 117 11297	100kΩ 5% 0.1W
3742	4822 117 13601	22kΩ 5% 0402
3743	4822 117 13601	22kΩ 5% 0402
3745	4822 117 11297	100kΩ 5% 0.1W
3752	3198 031 01510	150Ω 5% 0.01W 0402
3753	3198 031 01510	150Ω 5% 0.01W 0402
3781	4822 117 12925	47kΩ 1% 0.063W 0603
3782	4822 051 30151	150Ω 5% 0.062W
3783	4822 051 30103	10kΩ 5% 0.062W
3784	4822 051 30102	1kΩ 5% 0.062W
3788	4822 051 30102	1kΩ 5% 0.062W
3836	4822 117 13606	10kΩ 5% 0.01W 0402
3838	4822 117 13606	10kΩ 5% 0.01W 0402
3876	3198 031 06890	68Ω 5% 0402
3877	3198 031 06890	68Ω 5% 0402
3879	3198 031 06890	68Ω 5% 0402
3883	3198 031 06890	68Ω 5% 0402
3886	4822 117 13606	10kΩ 5% 0.01W 0402
3887	4822 117 13606	10kΩ 5% 0.01W 0402
3910	4822 117 13602	2.2kΩ 5% 0.01W 0402
3911	4822 117 13548	1kΩ 5% 0402
3930	4822 117 12917	1Ω 5% 0.062W
3931	4822 117 12917	1Ω 5% 0.062W
3932	2322 704 61002	1kΩ 1%
3933	2322 704 63302	3.3kΩ 1% 0603
3951	4822 117 12917	1Ω 5% 0.062W
3952	4822 117 12917	1Ω 5% 0.062W
3953	2322 704 61002	1kΩ 1%
3954	2322 704 63302	3.3kΩ 1% 0603
3955	4822 117 13606	10kΩ 5% 0.01W 0402
3958	3198 031 01530	15kΩ 5% 0.01W 0402
4002	4822 117 13605	Jumper 0402
4005	4822 117 13605	Jumper 0402
4007	4822 117 13605	Jumper 0402
4008	4822 117 13605	Jumper 0402
4017	4822 117 13605	Jumper 0402
4018	4822 117 13605	Jumper 0402
4023	4822 117 13605	Jumper 0402
4062	4822 117 13605	Jumper 0402
4327	4822 051 30008	Jumper 0603
4331	4822 051 30008	Jumper 0603
4333	4822 051 30008	Jumper 0603
4334	4822 051 30008	Jumper 0603
4360	4822 117 13605	Jumper 0402
4361	4822 117 13605	Jumper 0402
4362	4822 117 13605	Jumper 0402
4363	4822 117 13605	Jumper 0402
4444	4822 051 30008	Jumper 0603
4580	4822 117 13605	Jumper 0402
4581	4822 117 13605	Jumper 0402
4583	4822 117 13605	Jumper 0402
4593	4822 117 13605	Jumper 0402
4601	4822 117 13605	Jumper 0402
4602	4822 117 13605	Jumper 0402
4603	4822 117 13605	Jumper 0402
4608	4822 117 13605	Jumper 0402
4708	4822 051 30008	Jumper 0603
4710	4822 117 13605	Jumper 0402
4711	4822 117 13605	Jumper 0402
4720	4822 051 30008	Jumper 0603
4836	4822 051 30008	Jumper 0603
4838	4822 051 30008	Jumper 0603

5001	2422 536 00667	1000µF 20% 7032
5002	4822 157 11716	Bead 30Ω at 100MHz
5003	4822 157 11716	Bead 30Ω at 100MHz
5004	4822 157 11716	Bead 30Ω at 100MHz
5005	4822 157 11716	Bead 30Ω at 100MHz
5006	4822 157 11716	Bead 30Ω at 100MHz
5007	4822 157 11716	Bead 30Ω at 100MHz

5008	4822 157 11716	Bead 30Ω at 100MHz
5010	3198 018 64790	47μF 5% 1008
5060	4822 157 11716	Bead 30Ω at 100MHz
5066	3198 018 51080	1μH 10% 0603
5067	3198 018 51080	1μH 10% 0603
5070	4822 157 11716	Bead 30Ω at 100MHz
5071	2422 549 42896	Bead 120Ω 100MHz
5072	2422 549 42896	Bead 120Ω 100MHz
5139	4822 051 20008	Jumper 0805
5251	2422 549 45333	Bead 120Ω 100MHz
5252	2422 549 45333	Bead 120Ω 100MHz
5257	2422 549 45333	Bead 120Ω 100MHz
5258	2422 549 45333	Bead 120Ω 100MHz
5262	2422 535 94134	10μH 20% 0805
5267	2422 536 00339	33μ 20%
5268	2422 535 94995	10μF 20% 10145
5304	4822 157 11499	Bead 60Ω 100MHz
5309	3198 018 31290	12μH 10%
5321	3198 018 33970	0.39μF 10% 0805
5324	4822 157 71334	0.68μH
5370	4822 157 11716	Bead 30Ω at 100MHz
5371	4822 157 11716	Bead 30Ω at 100MHz
5372	4822 157 11716	Bead 30Ω at 100MHz
5530	2422 549 45333	Bead 120Ω 100MHz
5560	4822 157 11716	Bead 30Ω at 100MHz
5580	4822 157 71304	1μH
5605	2422 549 45333	Bead 120Ω 100MHz
5607	2422 549 45333	Bead 120Ω 100MHz
5636	2422 549 45333	Bead 120Ω 100MHz
5680	2422 549 45333	Bead 120Ω 100MHz
5683	2422 549 45333	Bead 120Ω 100MHz
5684	2422 549 45333	Bead 120Ω 100MHz
5685	2422 549 45333	Bead 120Ω 100MHz
5686	2422 549 45333	Bead 120Ω 100MHz
5687	2422 549 45333	Bead 120Ω 100MHz
5720	4822 157 11716	Bead 30Ω at 100MHz
5721	4822 157 11716	Bead 30Ω at 100MHz
5722	4822 157 11716	Bead 30Ω at 100MHz
5874	2422 549 45333	Bead 120Ω 100MHz
5910	2422 536 00667	1000μF 20% 7032
5920	2422 549 45333	Bead 120Ω 100MHz
5930	2422 535 94134	10μH 20% 0805
5931	2422 536 00689	220μF 20%
5932	2422 535 94134	10μH 20% 0805
5952	2422 535 94134	10μH 20% 0805
5953	2422 536 00689	220μF 20%
5954	2422 535 94134	10μH 20% 0805
5956	2422 549 45333	Bead 120Ω 100MHz
5957	2422 549 45333	Bead 120Ω 100MHz
5984	2422 549 45333	Bead 120Ω 100MHz
5985	2422 549 45333	Bead 120Ω 100MHz
5986	2422 549 45333	Bead 120Ω 100MHz
5987	2422 549 45333	Bead 120Ω 100MHz
5988	2422 549 45333	Bead 120Ω 100MHz
5989	2422 549 45333	Bead 120Ω 100MHz
5990	2422 549 45333	Bead 120Ω 100MHz
5991	2422 549 45333	Bead 120Ω 100MHz
5994	2422 549 45333	Bead 120Ω 100MHz
5996	2422 549 45333	Bead 120Ω 100MHz
5997	2422 549 45333	Bead 120Ω 100MHz
5998	2422 549 45333	Bead 120Ω 100MHz

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6001	4822 130 11397	BAS316
6002	4822 130 11397	BAS316
6005	9340 553 52115	BAS321
6020	4822 130 11397	BAS316
6021	4822 130 11397	BAS316
6075	4822 130 80622	BAT54
6076	4822 130 80622	BAT54
6121	4822 130 11416	PDZ6.8B
6143	4822 130 11416	PDZ6.8B
6259	9322 128 70685	SMSS14
6262	3198 010 10720	SS24
6267	3198 010 10730	SS36
6270	4822 130 10837	UDZS8.2B
6310	4822 130 11397	BAS316
6323	4822 130 11525	1SS356
6328	4822 130 11416	PDZ6.8B
6329	4822 130 11416	PDZ6.8B
6330	4822 130 11416	PDZ6.8B
6331	4822 130 11416	PDZ6.8B
6563	9322 102 64685	UDZ2.7B
6564	4822 130 11416	PDZ6.8B
6565	4822 130 10838	UDZ3.3B
6604	4822 130 11397	BAS316
6605	4822 130 11397	BAS316
6634	9322 102 64685	UDZ2.7B
6635	9322 102 64685	UDZ2.7B
6638	9322 102 64685	UDZ2.7B
6639	9322 102 64685	UDZ2.7B
6693	4822 130 11397	BAS316
6701	3198 020 55680	BZX384-C5V6
6910	5322 130 34337	BAV99
6911	9340 548 71115	PDZ33B
6930	9322 128 70685	SMSS14
6951	9322 128 70685	SMSS14

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7001	9339 693 90135	BCP69-25
7002	9340 425 20115	BC847BS
7003	9339 693 90135	BCP69-25
7004	3198 010 42310	BC847BW
7005	9340 547 13215	BSH103
7011		For SW see item 0601
7012	3198 010 42310	BC847BW
7013	3198 010 42310	BC847BW
7014	3198 010 42310	BC847BW
7015	9322 208 05668	SM NE555D
7016	9322 208 05668	SM NE555D
7017	9322 208 05668	SM NE555D
7018	5322 130 60159	BC846B
7019	5322 130 60159	BC846B
7051	3104 317 07851	SW (check Prod. Survey)
7054	3104 317 06681	SW (check Prod. Survey)
7070	9340 547 13215	BSH103
7075	4822 130 11155	PDTC114ET
7099	4822 209 17226	M24C08-WMN6
7119	5322 130 60159	BC846B
7138	5322 130 60159	BC846B
7260	9322 139 16668	LF33CPT
7262	9322 202 34668	L5973D
7271	3198 010 42310	BC847BW
7272	3198 010 42310	BC847BW
7320	3198 010 42310	BC847BW
7370	9340 550 49115	PUMH7
7371	9340 550 49115	PUMH7
7372	9340 550 49115	PUMH7
7376	9340 425 10115	BC857BS
7377	9340 425 10115	BC857BS
7401	9322 206 86671	GM1501-BD
7416	9322 157 51685	SI12301DS
7501	9322 199 17671	K4D263238M-QC50
7530		For SW see item 7051
7532	9352 691 71115	NE56610-27GW
7560	9352 334 10118	TDA9178T/N1
7561	3198 010 42310	BC847BW
7562	9322 199 24668	L7808CD2T
7563	4822 209 73852	PMBT2369
7579	4822 130 11155	PDTC114ET
7580	9322 199 16668	M74HC590T
7581	9322 199 16668	M74HC590T
7582	9322 201 05671	CY62256LL-70ZC
7583	9351 870 00118	74HC573PW
7584	9351 870 00118	74HC573PW
7585	3198 010 42310	BC847BW
7604	9352 607 39118	74LVC14APW
7605	4822 209 60792	74HC4053D
7606	9322 199 56668	ADG781BCP
7607	9322 199 80668	SM5301BS-G
7693		For SW see item 7054
7706	9351 742 70118	74HC08PW
7708	9340 550 49115	PUMH7
7710	9340 310 50215	PDTA143ET
7713	3198 010 42310	BC847BW
7714	3198 010 42310	BC847BW
7740	9322 183 05668	TS482ID
7887	3198 010 42310	BC847BW
7910	4822 130 42804	BC817-25
7920	9322 163 24668	L78M08CDT
7930	5322 209 90529	MC34063AD
7952	5322 209 90529	MC34063AD
7954	9322 157 51685	SI12301DS
7955	4822 130 11155	PDTC114ET
7992	9322 142 88668	LF25CDT
7995	9322 189 19668	LD1086D2T18

LCD Supply 30"/32" [AS]

Various

1007▲	4822 071 55002	Fuse T5A 250V
1304	2422 025 10647	Connector 4p m
1304	2422 025 10648	Connector 8p m
1305	4822 267 10735	Connector 3p
1306	2422 025 16374	Connector 2p m
1307	2422 025 10647	Connector 4p m
1308	4822 265 20723	Connector 2p
1309	2422 025 11143	Connector 3p m
1400▲	4822 253 50145	Fuse 3.15A T
1401▲	4822 252 11224	19181I1(1,0A)
1402▲	4822 252 60151	DSP-501N-A21F
1410▲	4822 265 11253	Fuse holder
1411▲	4822 265 11253	Fuse holder
1450▲	2422 132 07411	Relay 1p 5V 5A G5PA-1
1M02	2422 025 11244	Connector 7p m

⊣⊢

2000▲	2252 811 95022	1.5nF 20% 250V
2002	4822 124 11767	470μF 20% 25V
2003	4822 124 80061	1000μF 20% 25V
2007	4822 126 14583	470nF 10% 16V 0805
2008	4822 126 14583	470nF 10% 16V 0805
2009	2238 867 18101	100pF 1% 50V 0603
2010	4822 124 40207	100μF 20% 25V
2011	2022 333 00119	10nF 5% 1.6 KV
2012	4822 126 13862	1.5nF 10% 2kV
2013	4822 126 13862	1.5nF 10% 2kV
2014▲	2252 811 95018	2.2nF 20% 250V
2014▲	4822 126 13451	2.2nF 10% 2kV
2015	5322 126 11583	10nF 10% 50V 0603
2016	2238 586 59812	100nF 20% 50V 0603
2017	2022 333 00119	10nF 5% 1.6 KV
2019	5322 126 11583	10nF 10% 50V 0603
2020	2020 021 00012	2200μF 20% 16V
2021	2020 021 00012	2200μF 20% 16V
2022	4822 124 11583	2200μF 20% 35V
2022	4822 124 81168	2200U 20% 35V
2023	4822 126 14583	470nF 10% 16V 0805
2024	2020 552 96326	220nF 10% 16V
2025	2020 552 96683	220nF 10% 50V
2026	4822 126 14238	2.2nF 50V 0603
2028	5322 126 11578	1nF 10% 50V 0603
2029	5322 126 11578	1nF 10% 50V 0603
2033	2020 552 96683	220nF 10% 50V
2034	2238 867 18101	100pF 1% 50V 0603
2035	2238 867 18101	100pF 1% 50V 0603
2036	4822 126 14583	470nF 10% 16V 0805
2037	4822 126 14583	470nF 10% 16V 0805
2038	4822 124 11583	2200μF 20% 35V
2038	4822 124 81168	2200U 20% 35V
2039	4822 126 14583	470nF 10% 16V 0805
2039	5322 126 11583	10nF 10% 50V 0603
2040	4822 126 14249	560pF 10% 50V 0603
2041	2020 552 96683	220nF 10% 50V
2042	2020 552 96683	220nF 10% 50V
2043	2020 552 96683	220nF 10% 50V
2044	5322 126 11578	1nF 10% 50V 0603
2045	5322 126 11578	1nF 10% 50V 0603
2046	3198 017 34730	47nF 16V 0603
2047	5322 126 11583	10nF 10% 50V 0603
2048	5322 126 11578	1nF 10% 50V 0603
2050	5322 126 11578	1nF 10% 50V 0603
2051	2020 552 96683	220nF 10% 50V
2052	2020 552 96683	220nF 10% 50V
2053	2020 552 96683	220nF 10% 50V
2060	4822 126 14238	2.2nF 50V 0603
2061	4822 126 14238	2.2nF 50V 0603
2062	4822 126 14238	2.2nF 50V 0603
2063	4822 126 13881	470pF 5% 50V
2064	4822 126 13881	470pF 5% 50V
2065	4822 126 14238	2.2nF 50V 0603
2071	5322 126 11578	1nF 10% 50V 0603
2072	5322 126 11578	1nF 10% 50V 0603
2077	4822 126 14238	2.2nF 50V 0603
2290	5322 126 11583	10nF 10% 50V 0603
2291	4822 126 13881	470pF 5% 50V
2292	2020 021 91354	1000μF 20% 50V
2292	4822 124 12417	2200μF 20% 25V
2293	4822 126 13881	470pF 5% 50V
2294	2020 021 91354	1000μF 20% 50V
2294	4822 124 12417	2200μF 20% 25V
2400▲	2222 338 22474	470nF 20% 275V
2407▲	2252 811 95065	220pF 10% 250V
2503	2020 024 90718	10μF 20% 450V
2803	2222 365 55563	56nF 10% 400V
2804	2222 365 55563	56nF 10% 400V
2816	2020 024 90749	330μF 20% 400V

-WW-

3000▲	4822 052 10478	4.7Ω 5% 0.33W
3001	4822 051 30101	100Ω 5% 0.062W
3002	4822 051 30103	10kΩ 5% 0.062W
3002	4822 051 30223	22kΩ 5% 0.062W
3003	4822 117 13632	100kΩ 1% 0603 0.62W
3004	4822 051 30273	27kΩ 5% 0.062W
3005	4822 051 30333	33kΩ 5% 0.062W
3006	4822 051 30103	10kΩ 5% 0.062W
3007	4822 051 30103	10kΩ 5% 0.062W
3008	4822 051 30331	330Ω 5% 0.062W
3009	4822 051 30332	3.3Ω 5% 0.062W
3010	4822 051 30471	47Ω 5% 0.062W

3011	4822 051 30471	47Ω 5% 0.062W
3012	4822 051 30153	15kΩ 5% 0.062W
3013	4822 051 30103	10kΩ 5% 0.062W
3014▲	4822 052 10101	100Ω 5% 0.33W
3015▲	4822 052 10479	47Ω 5% 0.33W
3016	4822 051 30332	3.3Ω 5% 0.062W
3017▲	4822 052 10101	100Ω 5% 0.33W
3018▲	4822 052 10479	47Ω 5% 0.33W
3019	4822 051 30332	3.3Ω 5% 0.062W
3020	4822 051 30332	3.3Ω 5% 0.062W
3021	4822 117 12139	22Ω 5% 0.062W
3021	4822 117 12971	15Ω 5% 0603 0.62W
3022	4822 051 30681	680Ω 5% 0.062W
3023	4822 051 30153	15kΩ 5% 0.062W
3024	2322 704 63303	33kΩ 1% 0603
3025	4822 117 12903	1.8kΩ 1% 0.063W 0603
3026	4822 101 11383	Trimmer 470Ω 30% linear
3027	4822 117 13632	100kΩ 1% 0603 0.62W
3028	4822 051 30332	3.3Ω 5% 0.062W
3029	4822 051 30332	3.3Ω 5% 0.062W
3030	4822 051 30183	18kΩ 5% 0.062W
3031	4822 051 30103	10kΩ 5% 0.062W
3032	4822 051 30103	10kΩ 5% 0.062W
3033▲	4822 052 11108	1Ω 5% 0.5W
3034	4822 051 30102	1kΩ 5% 0.062W
3035	4822 051 30332	3.3Ω 5% 0.062W
3036	4822 117 13632	100kΩ 1% 0603 0.62W
3039	4822 051 30102	1kΩ 5% 0.062W
3040	5322 117 13056	8.2kΩ 1% 0.063W 0603
3041	4822 051 30333	33kΩ 5% 0.062W
3042	4822 051 30123	12kΩ 5% 0.1W
3043	4822 051 30109	10Ω 5% 0.062W
3044	4822 051 30471	47Ω 5% 0.062W
3045	4822 117 12139	22Ω 5% 0.062W
3045	4822 117 12971	15Ω 5% 0603 0.62W
3046	4822 117 12139	22Ω 5% 0.062W
3046	4822 117 12971	15Ω 5% 0603 0.62W
3047	4822 051 30479	47Ω 5% 0.062W
3048	4822 051 30272	2.7kΩ 5% 0.062W
3049	4822 051 30333	33kΩ 5% 0.062W
3050	4822 050 28204	820kΩ 1% 0.6W
3051	4822 051 30472	4.7Ω 5% 0.062W
3052	2322 704 61603	16kΩ 1% 0603
3053	4822 050 26804	680kΩ 1% 0.6W
3054	4822 051 30472	4.7Ω 5% 0.062W
3055	4822 051 30221	220Ω 5% 0.062W
3056	4822 051 30221	220Ω 5% 0.062W
3057	4822 051 30221	220Ω 5% 0.062W
3058	4822 053 20565	5.6MΩ 5% 0.25W
3059	4822 051 30222	2.2kΩ 5% 0.062W
3061	4822 051 30683	68kΩ 5% 0.062W
3064	4822 051 30103	10kΩ 5% 0.062W
3065	4822 117 13632	100kΩ 1% 0603 0.62W
3066	4822 051 30103	10kΩ 5% 0.062W
3067	4822 051 30101	100Ω 5% 0.062W
3068	4822 051 30222	2.2kΩ 5% 0.062W
3070	4822 051 30102	1kΩ 5% 0.062W
3071	4822 051 30103	10kΩ 5% 0.062W
3075	4822 051 30102	1kΩ 5% 0.062W
3100	4822 051 30102	1kΩ 5% 0.062W
3100	4822 051 30109	10Ω 5% 0.062W
3292	4822 051 30561	560Ω 5% 0.062W
3400▲	2122 550 00158	VDR 1mA 612V
3401▲	4822 053 21475	4.7MΩ 5% 0.5W
3402▲	4822 053 21475	4.7MΩ 5% 0.5W
3403▲	4822 053 21475	4.7MΩ 5% 0.5W
3404	4822 116 83872	220Ω 5% 0.5W
3810	2322 257 41123	12kΩ 5% 5W
3999	4822 117 12925	47kΩ 1% 0.063W 0603
9002	4822 051 30008	Jumper 0603
9009	4822 051 30008	Jumper 0603
9030	4822 051 30008	Jumper 0603
9047	4822 051 30008	Jumper 0603
9085	4822 051 30008	Jumper 0603

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5001	2422 531 02444	Transf. S13932-04Y
5002▲	8204 000 77311	Transf. 2652.0001
5004	4822 526 10704	Bead 100MHz
5005	4822 157 11411	Bead 100MHz
5005	4822 526 10704	Bead 100MHz
5007	4822 157 11411	Bead 100MHz
5007	4822 526 10704	Bead 100MHz
5008	4822 157 11411	Bead 100MHz
5008	4822 526 10704	Bead 100MHz
5009	4822 157 11411	Bead 100MHz
5010	4822 157 11411	Bead 100MHz
5013	4822 157 11411	Bead 100MHz
5013	4822 526 10704	Bead 100MHz
5015	4822 157 11411	Bead 100MHz
5016	4822 157 11411	Bead 100MHz
5017	4822 526 10704	Bead 100MHz
5025	4822 526 10704	Bead 100MHz
5026	4822 526 10704	Bead 100MHz
5027	4822 526 10704	Bead 100MHz
5028	4822 526 10704	Bead 100MHz
5029	4822 526 10704	Bead 100MHz
5030	4822 526 10704	Bead 100MHz
5031	4822 526 10704	Bead 100MHz
5032	4822 526 10704	Bead 100MHz
5034	4822 526 10704	Bead 100MHz
5040	4822 157 11411	Bead 100MHz
5041	4822 526 10704	Bead 100MHz
5291	2422 536 00776	33µH 10%
5292	2422 536 00776	33µH 10%
5293	2422 536 00776	33µH 10%
5401▲	2422 549 43291	Filter 47mH 2A
5403	3104 308 21191	Coil DTH40323H65

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6002	4822 130 11397	BAS316
6003	4822 130 11397	BAS316
6004	4822 130 11397	BAS316
6004	4822 130 80622	BAT54
6005	4822 130 11397	BAS316
6005	4822 130 80622	BAT54
6006	4822 130 11397	BAS316
6007	4822 130 11397	BAS316
6008	4822 130 11397	BAS316
6009	4822 130 11152	UDZ18B
6010	4822 130 11397	BAS316
6011	4822 130 11397	BAS316
6012	9322 197 30685	SML4744
6013	9322 197 30685	SML4744
6017	4822 130 11397	BAS316
6020	4822 130 11397	BAS316
6021	9322 206 26687	STPS20H100CT
6022	4822 130 11148	UDZ4.7B
6023	4822 130 11397	BAS316
6025	9322 206 26687	STPS20H100CT
6027	4822 130 11397	BAS316
6028	4822 130 11397	BAS316
6030	4822 130 11397	BAS316
6044	9322 207 11687	STPS20L45CT
6045	9322 207 11687	STPS20L45CT
6051	4822 130 11397	BAS316
6054	4822 130 11551	UDZS10B
6077	9322 202 55685	BYG22D
6078	9322 202 55685	BYG22D
6079	9322 202 55685	BYG22D
6080	9322 202 55685	BYG22D
6081	9340 548 67115	PDZ22B
6291	4822 130 11572	STPS8H100F
6293	4822 130 11572	STPS8H100F
6460	4822 130 11397	BAS316
6461	4822 130 11397	BAS316
6506▲	4822 130 83147	DF06M
6807▲	9322 199 74682	GBJ6J-B15

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7001	9322 108 21682	MC34067P
7002▲	9322 149 04682	TCET1102
7004	3198 010 42310	BC847BW
7005	9322 192 18687	STP15NK50ZFP
7005	9322 205 26687	FQPF18N50V2
7006	9322 205 26687	FQPF18N50V2
7007	3198 010 42320	BC857BW
7008	3198 010 42320	BC857BW
7009	3198 010 42320	BC857BW
7010	4822 209 16406	TL431ACD
7010	9322 125 09668	TL431AID
7017	3198 010 42320	BC857BW
7018	3198 010 42310	BC847BW
7030	3198 010 42310	BC847BW
7031	3198 010 42310	BC847BW

Side I/O Panel [D]

Various

0900	2422 026 05133	Connector SVHS 4p f
0901	4822 267 10975	Connector 3p
0902	4822 267 31014	Socket head phone
0936	2422 025 12485	Connector 11p m
1900	2422 026 05133	Connector SVHS 4p f
1901	4822 267 10975	Connector 3p
1902	4822 267 31014	Socket head phone
1936	2422 025 12485	Connector 11p m
8936	3104 311 06121	Cable 11p560/11p

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2903	5322 122 32531	100pF 5% 50V
2904	5322 122 32531	100pF 5% 50V
2905	4822 122 33177	10nF 20% 50V
2905	5322 122 32654	22nF 10% 63V 0805
2906	4822 122 33177	10nF 20% 50V
2906	5322 122 32654	22nF 10% 63V 0805

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3901	4822 117 11373	100Ω 1% 0805
3902	4822 116 52201	75Ω 5% 0.5W
3903	4822 117 11373	100Ω 1% 0805
3904	4822 116 52201	75Ω 5% 0.5W
3905	4822 050 11002	1kΩ 1% 0.4W
3906	4822 050 11002	1kΩ 1% 0.4W
3908	4822 050 11002	1kΩ 1% 0.4W
3910	4822 116 52276	3.9Ω 5% 0.5W
3911	4822 050 21003	10kΩ 1% 0.6W
3912	4822 050 21003	10kΩ 1% 0.6W
4901	4822 051 20008	Jumper 0805
4903	4822 051 20008	Jumper 0805

Top Control Panel [E]

Various

0053	3104 308 10551	TC assy knob R LCD 30"
0055	3104 308 10561	TC assy knob L LCD 30"
0057	3104 304 25831	TC frame LCD 30"
0058	3104 308 10571	TC assy knob M LCD 30"
0345	4822 267 10459	Connector 3p
1701	2422 128 02778	Tact switch
1702	2422 128 02778	Tact switch
1703	2422 128 02778	Tact switch
1704	2422 128 02778	Tact switch
1705	2422 128 02778	Tact switch
8345	3104 311 07211	Cable 3P/560/3P

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3001	4822 051 20391	390Ω 5% 0.1W
3003	4822 117 13528	200Ω 1% 0.125W 0805
3005	4822 117 11951	2kΩ 1% 0.1W
3009	4822 117 11534	1.1kΩ 1% 0.1W
3011	4822 117 10845	620Ω 1% 0.1W
3999	4822 051 20471	470Ω 5% 0.1W
9001	4822 051 20008	Jumper 0805
9003	4822 051 20008	Jumper 0805
9005	4822 051 20008	Jumper 0805
9006	4822 051 20008	Jumper 0805

LED + Switch Panel [J]

Various

0320	2422 025 16545	Connector 10p m
1101	2422 128 03123	Switch 2p 2pos 30V

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2107	4822 124 12095	100µF 20% 16V
2120	3198 030 71090	10µF 20% 35V
2126	4822 126 14583	470nF 10% 16V 0805

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3101	4822 051 30151	150Ω 5% 0.062W
3103	4822 051 30331	330Ω 5% 0.062W
3105	4822 051 30681	680Ω 5% 0.062W
3106	4822 051 30151	150Ω 5% 0.062W
3107	4822 051 30471	47Ω 5% 0.062W
3108	4822 051 30103	10kΩ 5% 0.062W
3109	4822 051 30101	100Ω 5% 0.062W
3120	4822 051 30472	4.7Ω 5% 0.062W
3121	4822 051 30103	10kΩ 5% 0.062W
3122	4822 051 30332	3.3Ω 5% 0.062W
3123	4822 051 30332	3.3Ω 5% 0.062W
3124	4822 051 30102	1kΩ 5% 0.062W
3126	2322 702 60335	3.3MΩ 5% 0603
3127	2322 702 60335	3.3MΩ 5% 0603
3128	4822 051 30472	4.7Ω 5% 0.062W
4101	4822 051 30008	Jumper 0603
4107	4822 051 30008	Jumper 0603
4108	4822 051 30008	Jumper 0603
4111	4822 051 30008	Jumper 0603

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5100	2422 549 43769	Bead 30Ω 100MHz

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6101	4822 130 11564	UDZ3.9B
6103	4822 130 83915	TLMV3100
6105	4822 130 11564	UDZ3.9B
6127	9322 140 63685	TEMD5000

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7103	3198 010 42320	BC857BW
7105	3198 010 42320	BC857BW
7107	9322 206 81667	TSOP34836YA1
7120	5322 209 82941	LM358D

Stand-by Audio Panel [SA]

Various

1304	2422 025 10647	Connector 4p m
1305	4822 267 10735	Connector 3p
1306	2422 025 16374	Connector 2p m
1307	2422 025 10647	Connector 4p m
1309	2422 025 11143	Connector 3p m
1312	2422 025 18166	Connector 16p m
1313	2422 025 18166	Connector 16p m
1317	2422 025 10772	Connector 12p m
1735	2422 025 10768	Connector 3p m
1735	4822 267 10918	Connector 3P
1736	2422 025 10768	Connector 3p m
1739	2422 025 10769	Connector 9p m
1M02	2422 025 11244	Connector 7p m
1M03	2422 025 10771	Connector 10p m
1M10	2422 025 09406	Connector 4p m
1M46	2422 025 10655	Connector 11p m

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2101	4822 121 51598	2.2nF 5% 400V
2102	4822 124 40207	100µF 20% 25V
2103	2020 552 94427	100pF 5% 50V
2105	2020 552 94427	100pF 5% 50V
2107	2020 024 90718	10µF 20% 450V
2108	2020 024 90718	10µF 20% 450V
2109	2022 552 05679	1µF 10% 16V 0805
2110	2022 552 05679	1µF 10% 16V 0805
2111	4822 121 43526	47nF 5% 250V
2112	5322 126 11583	10nF 10% 50V 0603
2123	2238 586 59812	100nF 20% 50V 0603
2124	4822 124 40248	10µF 20% 63V
2129	5322 126 11578	1nF 10% 50V 0603
2131	2238 586 15641	22nF 10% 50V 0603
2132	4822 124 40207	100µF 20% 25V
2140	4822 124 40248	10µF 20% 63V
2141	4822 126 14583	470nF 10% 16V 0805
2144	2022 552 05679	1µF 10% 16V 0805
2145	4822 126 13881	470pF 5% 50V
2149	2022 552 05679	1µF 10% 16V 0805
2150	4822 124 12379	220µF 25V
2152	4822 121 70162	10nF 5% 400V
2153	5322 126 11582	6.8nF 10% 63V
2154	3198 017 31530	15nF 20% 50V 0603
2160	4822 124 21913	1µF 20% 63V
2163	4822 124 40207	100µF 20% 25V
2506▲	2252 811 95017	470pF 10% 250V
2507	4822 126 13682	100pF 5% 1kV
2508	4822 124 40764	22µF 100V
2510	2020 021 91668	2200µF 20% 10V
2511	4822 124 12379	220µF 25V
2513	4822 126 10206	2.2nF 10% 500V
2515	4822 126 14238	2.2nF 50V 0603
2533	4822 124 40207	100µF 20% 25V
2534	2022 552 05679	1µF 10% 16V 0805
2535	5322 126 11583	10nF 10% 50V 0603
2536	5322 126 11583	10nF 10% 50V 0603
2537	4822 126 14238	2.2nF 50V 0603
2538	5322 126 11583	10nF 10% 50V 0603
2539	2022 552 05679	1µF 10% 16V 0805
2540	5322 126 11583	10nF 10% 50V 0603
2544	5322 126 11583	10nF 10% 50V 0603
2701	4822 124 12379	220µF 25V
2702	5322 126 11578	1nF 10% 50V 0603
2704	5322 126 11578	1nF 10% 50V 0603
2705	2020 552 96684	470nF 10% 25V 0805
2706	2222 580 15649	100nF 10% 50V 0805
2707	4822 126 14585	100nF 10% 0805 50V
2708	2020 552 96326	220nF 10% 16V
2709	4822 126 13881	470pF 5% 50V
2710	4822 126 13881	470pF 5% 50V
2711	5322 126 11578	1nF 10% 50V 0603
2712	2020 552 96683	220nF 10% 50V
2713	2020 552 96684	470nF 10% 25V 0805
2714	3198 017 33330	33nF 20% 16V 0603
2715	5322 126 11578	1nF 10% 50V 0603
2716	4822 126 14241	330pF 0603 50V
2717	5322 121 42498	680nF 5% 63V
2718	4822 122 33761	22pF 5% 50V
2719	5322 126 11578	1nF 10% 50V 0603
2720	2020 552 96326	220nF 10% 16V
2721	4822 126 13881	470pF 5% 50V
2722	4822 126 13881	470pF 5% 50V
2725	2020 552 94427	100pF 5% 50V
2726	3198 017 33330	33nF 20% 16V 0603
2727	5322 126 11578	1nF 10% 50V 0603
2728	4822 126 14241	330pF 0603 50V
2729	5322 121 42498	680nF 5% 63V
2764	4822 126 14491	2.2µF 10V 0805
2766	4822 126 14491	2.2µF 10V 0805
2768	4822 124 40255	100µF 20% 63V
2769	4822 124 40255	100µF 20% 63V
2777	2020 552 96683	220nF 10% 50V
2778	4822 124 40769	4.7µF 20% 100V
2779	2020 552 96683	220nF 10% 50V
2780	2020 552 96683	220nF 10% 50V
2781	2020 552 96683	220nF 10% 50V
2783	4822 124 41751	47µF 20% 50V
2786	2238 586 15641	22nF 10% 50V 0603
2788	4822 124 40255	100µF 20% 63V
2789	2020 552 96683	220nF 10% 50V
2790	4822 124 40255	100µF 20% 63V

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3100	4822 051 30101	100Ω 5% 0.062W
3101	4822 053 20475	4.7MΩ 5% 0.25W
3102	2312 915 11002	1kΩ 1% 0.5W
3103	2312 915 11002	1kΩ 1% 0.5W
3104	4822 051 30479	47Ω 5% 0.062W
3105	4822 051 30221	220Ω 5% 0.062W
3106	4822 051 30391	390Ω 5% 0.062W
3107	4822 051 30391	390Ω 5% 0.062W
3108	4822 053 10478	4.7Ω 5% 1W
3109	4822 051 30391	390Ω 5% 0.062W
3110	4822 051 30391	390Ω 5% 0.062W
3111	4822 053 10152	1.5kΩ 5% 1W
3112	4822 051 30391	390Ω 5% 0.062W
3113	4822 117 12139	22Ω 5% 0.062W
3114	4822 051 30221	220Ω 5% 0.062W
3117	4822 051 30479	47Ω 5% 0.062W
3122	4822 051 30471	47Ω 5% 0.062W
3123	4822 051 30109	10Ω 5% 0.062W
3124	4822 051 30339	33Ω 5% 0.062W
3125	4822 117 12971	15Ω 5% 0603 0.62W
3126	4822 051 30103	10kΩ 5% 0.062W
3127	4822 051 30562	5.6kΩ 5% 0.063W 0603
3128	4822 117 13608	4.7Ω 5% 0603 0.62W
3132	4822 051 30333	33kΩ 5% 0.062W
3134	4822 051 30102	1kΩ 5% 0.062W
3135	4822 051 30331	330Ω 5% 0.062W
3138	4822 051 30105	1MΩ 5% 0.062W
3140	4822 051 30223	22kΩ 5% 0.062W
3141	4822 051 30471	47Ω 5% 0.062W
3142	4822 051 30123	12kΩ 5% 0.1W
3145	4822 051 30472	4.7Ω 5% 0.062W
3146	4822 051 30479	47Ω 5% 0.062W
3147	4822 051 30223	22kΩ 5% 0.062W
3148	4822 051 30479	47Ω 5% 0.062W
3149	4822 051 30103	10kΩ 5% 0.062W
3150	4822 051 30101	100Ω 5% 0.062W
3152	4822 051 30102	1kΩ 5% 0.062W
3153	4822 051 30223	22kΩ 5% 0.062W
3155	4822 050 21003	10kΩ 1% 0.6W
3156	4822 051 30102	1kΩ 5% 0.062W
3157	4822 051 30223	22kΩ 5% 0.062W
3158	4822 051 30479	47Ω 5% 0.062W
3159	4822 051 30479	47Ω 5% 0.062W
3160	4822 051 30102	1kΩ 5% 0.062W
3161	4822 051 30123	12kΩ 5% 0.1W
3171	4822 051 30101	100Ω 5% 0.062W
3172	4822 051 30333	33kΩ 5% 0.062W
3175	4822 051 30103	10kΩ 5% 0.062W
3176	4822 051 30103	10kΩ 5% 0.062W
3509	4822 053 10222	2,2kΩ 5% 1W
3511	4822 051 30683	68kΩ 5% 0.062W
3512	4822 051 30471	47Ω 5% 0.062W
3513	4822 051 30333	33kΩ 5% 0.062W
3515	4822 117 13632	100kΩ 1% 0603 0.62W
3516	4822 051 30472	4.7Ω 5% 0.062W
3517	4822 051 30223	22kΩ 5% 0.062W
3528	4822 051 30472	4.7Ω 5% 0.062W
3529	4822 051 30101	100Ω 5% 0.062W
3530	4822 051 30223	22kΩ 5% 0.062W
3531	4822 051 30153	15kΩ 5% 0.062W
3532	4822 051 30472	4.7Ω 5% 0.062W
3533	4822 051 30152	1.5Ω 5% 0.062W
3534	4822 051 30103	10kΩ 5% 0.062W
3535	4822 051 30222	2.2kΩ 5% 0.062W
3536	4822 051 30103	10kΩ 5% 0.062W
3538	4822 051 30101	100Ω 5% 0.062W
3539	4822 051 30471	47Ω 5% 0.062W
3540	4822 051 30222	2.2kΩ 5% 0.062W
3541	4822 051 30222	2.2kΩ 5% 0.062W
3542	4822 051 30103	10kΩ 5% 0.062W
3544	4822 051 30221	220Ω 5% 0.062W
3560	4822 051 30682	6.8Ω 5% 0.062W
3561	4822 051 30392	3.9Ω 5% 0.063W 0603
3562	4822 117 13608	4.7Ω 5% 0603 0.62W
3701	4822 051 30103	10kΩ 5% 0.062W
3702	4822 051 30682	6.8Ω 5% 0.062W
3703	4822 051 30333	33kΩ 5% 0.062W
3704	4822 117 10833	10kΩ 1% 0.1W
3705	4822 051 20828	8.2Ω 5% 0.1W
3706	4822 051 30472	4.7Ω 5% 0.062W
3707	4822 051 30683	68kΩ 5% 0.062W
3708	4822 051 30563	56kΩ 5% 0.062W
3709	4822 117 11503	220Ω 1% 0.1W
3710	4822 051 30223	22kΩ 5% 0.062W
3711	4822 050 21204	120kΩ 1% 0,6W
3712	4822 051 30103	10kΩ 5% 0.062W
3713	2312 915 11202	1.2kΩ 1% 0.5W
3714	4822 117 12925	47kΩ 1% 0.063W 0603
3715	4822 117 12925	47kΩ 1% 0.063W 0603
3716	4822 117 12925	47kΩ 1% 0.063W 0603
3717	4822 117 13632	100kΩ 1% 0603 0.62W
3718	4822 117 13632	100kΩ 1% 0603 0.62W
3721	4822 051 30472	4.7Ω 5% 0.062W
3722	4822 051 30683	68kΩ 5% 0.062W
3723	4822 051 30563	56kΩ 5% 0.062W
3724	4822 117 11503	220Ω 1% 0.1W
3725	4822 051 30223	22kΩ 5% 0.062W
3726	4822 117 11503	220Ω 1% 0.1W
3727	4822 117 11503	220Ω 1% 0.1W
3743	4822 117 11449	2.2kΩ 5% 0.1W 0805
3746	4822 051 30223	22kΩ 5% 0.062W
3747	4822 050 24703	47kΩ 1% 0.6W
3747	4822 117 12925	47kΩ 1% 0.063W 0603
3748	4822 051 30471	47Ω 5% 0.062W
3750	4822 117 11449	2.2kΩ 5% 0.1W 0805
3756	4822 117 11449	2.2kΩ 5% 0.1W 0805
3757	4822 117 11449	2.2kΩ 5% 0.1W 0805
3759	4822 051 30332	3.3Ω 5% 0.062W
3760	4822 051 30332	3.3Ω 5% 0.062W
3761	4822 051 10102	1kΩ 2% 0.25W
3761	4822 051 20109	10Ω 5% 0.1W
3762	4822 051 30222	2.2kΩ 5% 0.062W
3763	4822 051 30222	2.2kΩ 5% 0.062W
3764	4822 051 10102	1kΩ 2% 0.25W
3764	4822 051 20109	10Ω 5% 0.1W
3765	4822 051 30103	10kΩ 5% 0.062W
3765	4822 117 13632	100kΩ 1% 0603 0.62W
3766	4822 051 30103	10kΩ 5% 0.062W
3766	4822 117 13632	100kΩ 1% 0603 0.62W
3767	4822 051 30103	10kΩ 5% 0.062W
3767	4822 117 13632	100kΩ 1% 0603 0.62W
3768	4822 051 30103	10kΩ 5% 0.062W
3768	4822 117 13632	100kΩ 1% 0603 0.62W
3790	4822 051 30222	2.2kΩ 5% 0.062W
3790	4822 051 30682	6.8Ω 5% 0.062W
3791	4822 051 30222	2.2kΩ 5% 0.062W
3791	4822 051 30682	6.8Ω 5% 0.062W
3792	4822 051 30153	15kΩ 5% 0.062W
3792	4822 051 30183	18kΩ 5% 0.062W
3793	4822 051 30153	15kΩ 5% 0.062W
3793	4822 051 30183	18kΩ 5% 0.062W
3798	4822 051 30153	15kΩ 5% 0.062W
3999	4822 051 30472	4.7Ω 5% 0.062W
9020	4822 051 30008	Jumper 0603
9717	4822 051 30008	Jumper 0603
9737	4822 051 30008	Jumper 0603

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5102	4822 526 10704	Bead 100MHz
5103	4822 526 10704	Bead 100MHz
5104	4822 157 11411	Bead 100MHz
5105	4822 157 11716	Bead 30Ω at 100MHz
5106	3198 018 31090	10µH 10% 0805
5108	4822 526 10704	Bead 100MHz
5110	4822 157 71736	10µH 5%
5500▲	3104 308 21181	Transformer BS25320-00
5504	2422 536 00776	33µH 10%
5505	4822 157 11411	Bead 100MHz

5506	4822 157 11411	Bead 100MHz
5507	2422 536 00433	15µH 10%
5701	2422 536 00385	68µH 10%
5702	2422 536 00385	68µH 10%
5703	4822 157 11716	Bead 30Ω at 100MHz
5705	4822 157 11716	Bead 30Ω at 100MHz
5707	4822 157 11411	Bead 100MHz
5708	4822 157 11411	Bead 100MHz
5711	4822 157 11411	Bead 100MHz
5712	4822 157 11411	Bead 100MHz
5730	2422 549 00112	Line filt. 50V 3A
5731	2422 549 00112	Line filt. 50V 3A

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6103	4822 130 10871	SBYV27-200
6104	9340 548 69115	PDZ27B
6105	4822 130 11522	UDZ15B
6106	9340 548 66115	PDZ20B
6108	4822 130 80622	BAT54
6114	4822 130 10871	SBYV27-200
6115	4822 130 80622	BAT54
6116	3198 020 55680	BZX384-C5V6
6120	4822 130 11397	BAS316
6121	4822 130 11397	BAS316
6122	9322 129 34685	BZM55-C3V9
6130	9340 548 61115	PDZ12B
6132	4822 130 11416	PDZ6.8B
6133	4822 130 11397	BAS316
6134	4822 130 11397	BAS316
6140	4822 130 41487	BYV95C
6142	4822 130 80622	BAT54
6144	4822 130 11397	BAS316
6147	9322 200 23685	SML4736
6148	4822 130 11397	BAS316
6149	3198 020 55680	BZX384-C5V6
6150	9340 292 50135	BZG03-C200
6151	9340 548 71115	PDZ33B
6153	9340 292 50135	BZG03-C200
6156	4822 130 11397	BAS316
6504	9340 418 70133	BYV27-600
6505	9322 161 78682	SB360L-7024
6511	9340 548 61115	PDZ12B
6531	4822 130 11522	UDZ15B
6532	4822 130 11397	BAS316
6540	4822 130 80622	BAT54
6562	9340 548 67115	PDZ22B
6701	4822 130 11397	BAS316
6702	4822 130 11551	UDZS10B
6703	4822 130 11551	UDZS10B

7100	3198 010 42320	BC857BW
7101	9340 219 30115	BC817-25W
7102	9322 160 34687	FQPF3N60
7102	9322 194 27687	STP3NK60ZFP
7105	3198 010 42320	BC857BW
7131	9340 557 69127	PHX9NQ20T
7140	3198 010 42310	BC847BW
7150▲	9322 149 04682	TCET1102
7501▲	9322 149 04682	TCET1102
7505	3198 010 42320	BC857BW
7506	3198 010 42310	BC847BW
7507	3198 010 42310	BC847BW
7508	3198 010 42310	BC847BW
7509	3198 010 42310	BC847BW
7511	9337 331 10215	BST82
7512	9340 422 80115	PMSTA42
7531	9340 436 50115	BSP030
7532	3198 010 42310	BC847BW
7560	9340 219 30115	BC817-25W
7700	9322 163 86682	TDA7490L
7701	3198 010 42310	BC847BW
7703	3198 010 42310	BC847BW
7704	3198 010 42310	BC847BW
7705	3198 010 42310	BC847BW
7706	3198 010 42320	BC857BW
7707	3198 010 42310	BC847BW
7708	3198 010 42310	BC847BW
7709	3198 010 42310	BC847BW
7710	3198 010 42310	BC847BW
7711	3198 010 42310	BC847BW

11. Revision List

Manual xxxx xxx xxxx.0

- First release.

Manual xxxx xxx xxxx.1

- Chapter 7: To improve the readability, the PWB layout of the SA panel is splitted in two parts.
- Chapter 8:
  - Default values of White Tone Alignment added.
  - Backlight Voltage Alignment added.
- Chapter 9: Lip sync description added.
- Chapter 10: Correct software codenumbers listed.
- All chapters: small textual and graphical improvements.